THE STREAM OF HISTORY

GEOFFREY PARSONS

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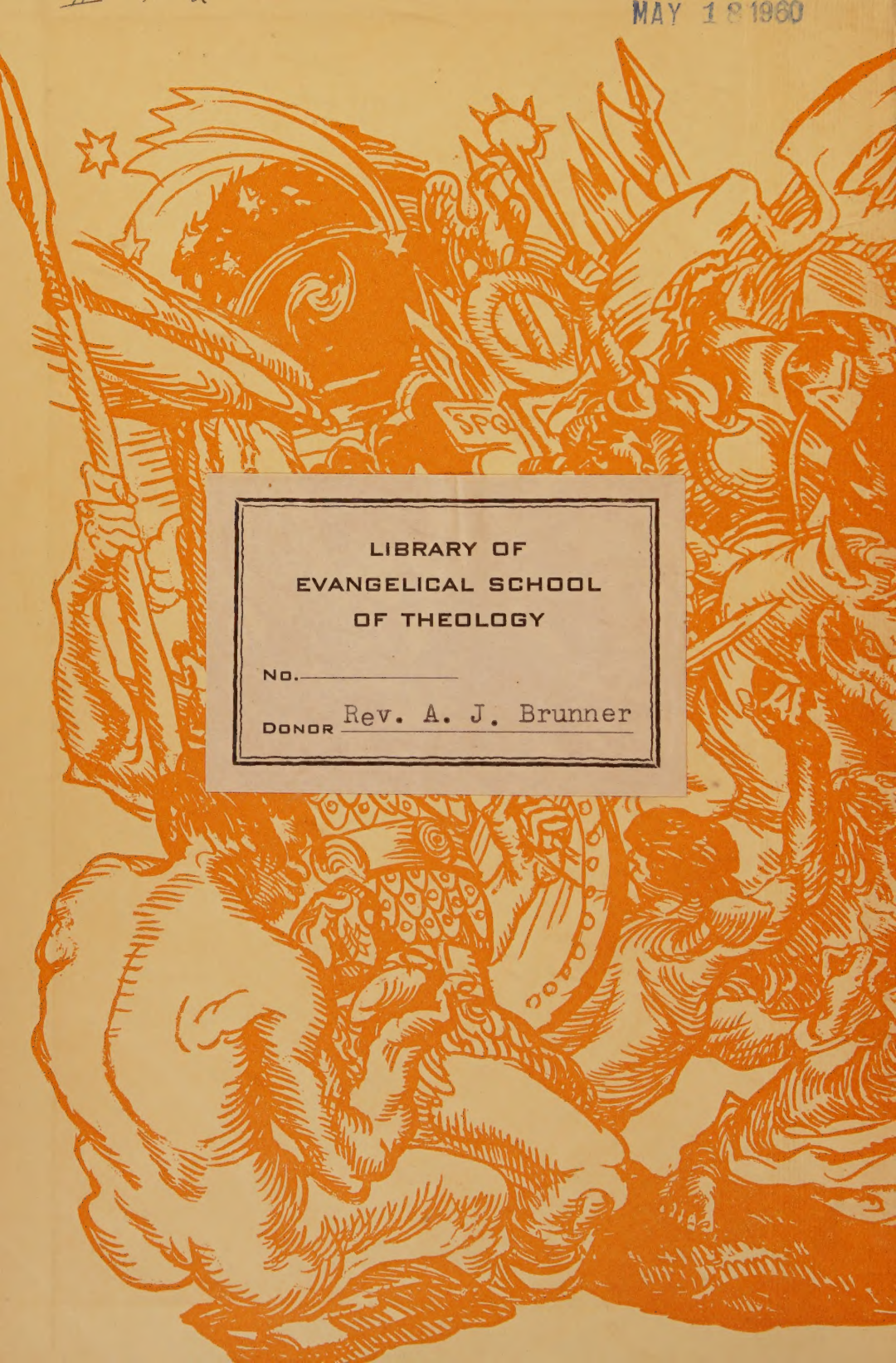

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THE STREAM OF HISTORY

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By
GEOFFREY PARSONS
Author of "The Land of Fair Play"

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CHARLES SCRIBNER'S SONS
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PREFACE

THIS short sketch of the past has one principal aim, to present the centuries not as the mountains of sunlit fact which history has tended to portray, but rather as a stream of mingled fact and theory, now clear, now muddied by passion and prejudice, eddying about this hero or that, and reaching each generation through the shifting channels of individual minds. There has been a slow gain in certainty as to facts. But the last century has exaggerated the gains in interpretative and useful wisdom. The extraordinary growth of science within its chosen territory has tended to obscure the vast unknown which surrounds the limited fields of fact and logic. The application of scientific method to certain of the data of history has misled its followers into assuming that not only the facts of the past but, in addition, man's conclusions therefrom, were approaching finality. The truth is rather that complexity increases as new approaches to the past are discovered.

The writer has aimed to tell the whole story of man and his earth and to tell it so swiftly and simply that its essential parts will stand forth in their due relationships unobscured by detail. Condensation and elimination have necessarily been extreme; no major fact, whether of science or art, of commerce, war, industry, or conscience, has been intentionally slighted.

The effort has been to take the reader behind the scenes of historical writing and present the possible alternatives of interpretation. Yet a neutral version has been neither hoped for nor sought. The very words of history prevent a scientific detachment. They come to our minds trailing clouds of ancient passion and prejudice whether we will or not. Impersonal history is an impossibility. Many of the

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works best worth reading are intensely partisan and unfair. History is a science only in respect to a small substratum of demonstrable truth. In all the important judgments of men and institutions and all the theories built thereon, history is an art, the creature of man's imagination and that practical wisdom which, using what ground reason can clear, leaps boldly into action across the remaining ditch of doubt.

The writer has consistently sought, therefore, in stating his personal opinion, to present as well the major disagreements of the experts and to stress the tentative character of every judgment. The volume thus presents no novel or revolutionary interpretation of the past. It is based on a study of the authoritative works, ancient and modern. An especial debt relating to method runs to certain pioneers in the art of vivid simplification, to Professor James Henry Breasted, Miss Edith Sichel, Professor R. R. Marett, and Professor John Linton Myres, who found distinguished scholarship no bar to making the past the common property of the present. The result, if the endeavor has succeeded, is to furnish not so much a summary of the past as an analysis of its problems and therewith a point of view for its continued study.

It is impossible to thank all those who have aided in the writing of the book, by their suggestions or criticisms, but especial acknowledgment is due to these friends, Mr. H. A. Cushing, Miss Marcia Dalphin, Mr. Clarence Day, Doctor E. E. Free, Mrs. Isabel Leavenworth, Professor Ralph V. D. Magoffin, and Mr. William L. McPherson, who have read the manuscript, in whole or in part, and, without being in any wise responsible for its failings, have contributed materially to such merit as it possesses. G. P.

Rye, New York,
April 10, 1928.

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THE STREAM OF HISTORY

CHAPTER I

THE STREAM OF THE PAST

THERE was once neither printed page nor man nor earth. Of the solar system, there was only a great sun soaring through space. In an hour of flame and rending it sent forth blazing fragments which cooled into dark and spinning balls circling about the sun and shining in its light. Upon one of the smaller of these has developed all that we live among and are, mountain and ocean, green things, fish, the great animals of the land, and, finally, mankind.

The earth is still turning from the force of that first thrust. But it is destined to turn more and more slowly.

It is in a sense dying; and some day long hence, as far in the future as its beginning is far in the past, it may cease to turn upon its axis, it may halt in its orbit about the sun. It may come to rest and hang cold and lifeless in space, perhaps to fall back into the sun, ending in flame, as it began.

This is the story of that fragment of the sun and of the adventure that has happened thus far upon its flight. Millions of years have come and gone for each change upon it. It is hard before such a confusion of events, such spaces of time, to picture all this as one stream of flowing fact. But scientists of many generations, working from every angle of approach, the astronomer, the chemist, the biologist, the many others, have brought an amazing order into this chaos. They have taken these millions of years and these masses of events and commenced to build of them a single body of truth which is called science. Each gain in knowledge has meant lifetimes of great minds, years of devoted labor. The task is but fairly begun. The unknown still far exceeds the known. When human actions are reached, facts elude and theories shift and falter. Yet already men of to-day, looking through these many eyes, seeing with this wisdom of the centuries, stand as upon a hilltop and are able, as no men were ever able before, to view this spectacle of the earth and its career as a single swift and moving tale.

I. IF EONS WERE DAYS

If there were a moving picture of this story, its film could be turned more and more quickly. In this fashion ordinary movements, a plant growing, a man walking, a horse trotting, can be shown as if passing at fabulous speed. Conceive a record of the earth presented in this manner. Picture its progress so hastened that a million years is a few minutes and its hundred or more millions of years pass in a few days. The result will distort details and omit

much. But the general survey will help preserve perspective in the pages to follow. Above all, it will strengthen a sense of the singleness of the stream which is the past.

The film begins at the point in time when the earth has become cool and solid and the planets march about the sun as to-day. It is impracticable to begin earlier, for the formative stage of the earth is too vaguely outlined to permit even a guess as to its duration.

The proportions of the schedule that follows are based on the roughest estimates. One must think of it as a rude plan with no pretense to mathematical accuracy. One can feel some confidence that if the career of the earth were divided into five parts, the picture of each part would run somewhat as shown. But the duration in years of the whole period, and of each part, can only be estimated. One is dealing with more millions of years than the mind of man can conceive. The earth matured at least five hundred million years ago, probably more than a billion years ago. Each of the five days that follow stands for not less than one hundred million years. With each ticking of the watch, there pass centuries. Age-long, invisible changes take minutes. Continents upheave like leviathans and sink again beneath the waves. The whole earth stirs like a living thing.

First Day. In the beginning there is an earth bare and terrible. Flame pours from a thousand volcanoes. Streams of lava flow far and wide. Not a tree or blade of grass shows on the land. Only the tides stir in the empty seas. Day long great mountains are washed into the sea by the savage storms, and new mountains upheave. It is an earth fresh from chaos, and so it remains throughout the day and night.

Second Day. Slowly in the morning the smoke and flame begin to abate. The clouds lift. The lands that

stand forth to view are still bleak rock and barren sand. But somewhere life is beginning, perhaps in the inland pools, perhaps along the edge of the warm sea; a gray jelly, floating where the tides will, an inconspicuous scum. No onlooker would notice it alongside the great mountain ranges that are folded aloft by the shrinking shell of the earth. Yet it has the power of growth and development, and it is destined to be mightier than all the hills.

Third Day. Still the dry land rises desolate and brown. Only in the sea are change and progress. There the first tiny animals drift about and seaweeds sway in the current. Toward evening the sea becomes alive with countless forms of life, with sponges and sea-anemones and jelly-fish, all the round, backboneless creatures of the deep. Finally, in the last hours, comes the great triumph of the day, a worm, boasting the first brain the earth has seen. More than half the life of the earth is past, and the only moving things on the continents are the great hills that cycle upon cycle are crumpled silently aloft and as silently flow into the sea.

Fourth Day. The lands are quieter as this day dawns, and hour by hour the first green plants begin to march from the sea to the dry land. Shallow seas spread over the low places of the continents and retreat again as the lands gently heave and fall. On the marsh-lands sprout great forests of fern-trees as tall as oaks, which presently are lying beneath the deltas of rivers and turning to coal. Meanwhile under water the first fish swim and oysters and clams and periwinkles grow their shells. Clumsy, shuffling creatures crawl hesitatingly out upon the shore for a while, and the long line of land-animals is in sight. Insects grow wings and buzz amid the great ferns, giant dragon-flies two feet across the wings. Great armored crocodiles rule the

marsh-lands. At midnight the first Appalachian Mountains upheave, as high as the Alps to-day.

Fifth Day. The morning of this crowded day sees the rise and decline of the giant reptiles, the great eighty-foot dinosaurs and the flying dragons twenty-five feet across the wings. True feathered birds take wing, the first flowers bloom, and the first mammals, the size of kittens, suckle their young. One of the mightiest of all mountain-makings comes at noon, folding ranges aloft from Alaska to Cape Horn. Not till the middle of the afternoon do the modern mammals begin to appear. Then one after another of the great line steps forth from the forest—elephant, tiger, bear, leopard, bison, and deer. The whale flops back into the sea. The first monkey takes to the trees. In the middle of the evening comes the last of the great mountain uplifts. The Alps and Himalayas are folded aloft across Europe and Asia; the Rocky Mountains are thrust up again. In the very last hour begins the Great Ice Age. Vast ice-floes march down upon northern America and northwestern Europe. In the last half-hour appears man, the hunter and savage, fighting for his life on the edge of the retreating ice. The whole story of historic man, from Ancient Egypt to the Great War, passes in the last twenty-three seconds of this Fifth Day.

CHAPTER II

OUR FRAGMENT OF THE SUN

It was an hour of flame and ruin that brought the earth into being. A giant sun was torn and riven, and the void round about was filled with crashing worlds. This much is reasonably sure. The manner of the catastrophe is another matter. Man is not certain of it, and probably never can be certain of it. There were no witnesses. The records were consumed as they were born or else lie hid in the heart of the earth. The astronomer alone can attempt to sketch a picture of this far event.

He has two main sources. One is a study of the peculiar arrangement of the solar system. The other is the observation of the heavens, where similar births may be taking place. The former has led to a general acceptance of the view that the earth and the other planets were in some fashion born of the sun; the latter has fixed attention upon those faint and cloudy bodies of the sky, the nebulæ.

The sun and its planets, separated by as many million of miles of cold and empty space as they are, form a close family group compared to the fixed stars and the distances which separate them from one another. A dot on one corner of a blackboard for the sun and another dot two inches away for the earth would place Neptune, the farthest planet, five feet away. The whole solar system can be represented on these few feet of blackboard: Mercury and Venus lying in the two inches between the earth and the sun, Mars, Jupiter, Saturn, and Uranus between the earth and Neptune. The nearest fixed star is *α* Centauri of Centaur (in the southern hemisphere of the sky). Continuing the scale of the blackboard, it lies out the window and across the fields almost a mile away. The other fixed stars would be even farther.

In one respect the universe is thus very much what it appears to be at night, relatively tiny points of light separated by vast emptiness. It is of bleak barren space that the world chiefly consists, huge as are many of the fixed stars, far greater than the sun. In another respect, however, the appearance of the sky is most deceptive. The planets, the brightest of which, Venus and Jupiter, might pass for large stars, are really much smaller bodies relatively close at hand and forming a true family group.

The fashion in which this group is arranged is highly significant. At the centre is the sun, so much larger than the planets that they circle around it just as one might swing a stone around one's head at the end of a string. Tying the planets to the sun is the attraction of gravity, which holds them in their courses just as surely as string could hold a stone. Against this force of gravity works the tendency of each planet to fly off into space by reason of the fact that it is whirling around the sun—just as the stone at the end of the string would fly off into space if it were not tied fast. These two forces are exactly balanced in

the case of each planet; that is why the solar system revolves century in and century out with such beautiful precision.

One can obtain a feeling for this hugeness of the sun and the smallness of the circling planets by reducing their scale and laying them off on the surface of the earth. If the sun were reduced to the size of a six-foot push-ball, such as teams of players push about a field, the earth would be a large marble set down 200 yards away. The planets between the earth and the sun are smaller than the earth. Mercury, the smallest and the nearest the sun, would be a small pea, Venus a marble slightly smaller than the earth. Beyond the earth would come first Mars, a large pea, then the small fry of the system in the belt sown with planetoids,* and finally the four great planets. Of these the first would be the largest, Jupiter, almost the size of a football three-fifths of a mile from the sun; and the last Neptune, the size of a baseball over thirty miles away from the sun. A baseball that distance from a push-ball seems isolated enough; but the nearest fixed star is immensely more remote. On this particular scale the nearest star, *α* Centauri, would be farther off than China.

These tiny representatives of the planets have been pictured on a level with each other and with the sun, and that also represents the truth. It is the second striking fact about the planets. They and the sun all move in the same plane, or nearly so. The only exceptions are some of the planetoids.

The third is that the orbits of the planets have nearly the same shape—that is to say, they are all slightly elliptical, or, put the other way, nearly circular.

The fourth is that they all revolve on their axes in the same direction.

* The old word for these small planets was asteroid. It is being discarded because it suggests that these bodies are stars (asteroid is from the Greek, meaning a star) shining from their own light, whereas they are really cool, dark bodies like all the planets.

The fifth is that the moons, with a few exceptions, revolve about their planets in the same direction that the planets revolve.

There are other facts of a more technical nature which point in the same direction. The system is, in general, exactly what one would expect to find if the whole once formed a great body and pieces had been broken off to form the planets. The coincidences are too many to be withstood. Such a peculiar arrangement might have been otherwise formed by a strange succession of events; some one has calculated that the chances against any other origin are many billions to one. So the astronomers come out at something very close to certainty on this point.

If the system came from one body, how was it formed? Science does not pretend to give a final answer. One needs to learn the slow ways of science and to share its attitude of reserve toward its trial theories. Here is a point of view that will help throughout, for all knowledge is growing and changing and there is as much danger in knowing overconfidently as in much ignorance.

A trial theory put forward in a science is called an hypothesis. It is a guess, but a guess based on a long gathering of facts patiently studied. The germ of such a guess may come in a flash, suggested by some simple happening, like the falling apple that suggested the law of gravity to Newton. In any event it is a work of the imagination quite as much as is any poem or statue. Once published, it comes under a fire of criticism from the entire world of science. It is tried and tested in every conceivable fashion. It stands or falls according as it successfully agrees with the facts brought forward to test it. All scientific progress has been over the remains of discarded hypotheses. Not one in a thousand stands in its original form. Such as still stand are in every degree of test and approval, from early speculation to acceptance as useful scientific laws; and even these latter are subject to revision and growth.

The nebular hypothesis, which suggests that the solar system originated from a nebula, was first put forward in definite form by the French astronomer Laplace in 1796; but, as with almost all scientific discoveries, there were many forerunners, notably the German philosopher Kant in 1754–1755. This theory starts with a great round nebula of very hot gas, far larger than the present sun, as large, indeed, as the entire solar system, so that the outermost planet, Neptune, would be included in it. This huge sphere revolved in the same direction that the planets now revolve around the sun. Thus revolving, it cooled and shrunk. In shrinking, the equatorial belt of the sphere would feel the greatest effect of centrifugal motion, and the hypothesis holds that this belt of gas would in time be left behind as a separate ring. It is commonly said that this ring would be "thrown off" by the swiftly whirling sphere, but it is more accurate to say that the interior of the sphere would shrink away from its bulging equator. This process would be repeated until a series of gaseous rings surrounded the core, a ring for each planet; each ring thereafter assembled into one sphere still swinging about the core, now contracted into the sun. The planets thus formed were conceived as still in a hot gaseous state, and they in turn contracting gave off rings in exactly similar fashion which became their moons. The rings of Saturn would be matter thus given off that for some reason failed to assemble into moons. They are the type of ring that Laplace had in mind, and probably suggested the theory.

This is a very beautiful and simple explanation. It was widely favored for a long while, but for the past fifty years it has been under increasing criticism, and at the present time is gravely doubted. The objections to it are highly technical, coming largely from physicists and mathematicians, who have argued, in effect, that a gaseous sphere could not give off rings in this fashion. A number of modi-

fications of the original Laplace formula have been put forward in an effort to meet these objections, but none has solved the difficulties involved in this form of origin.

At the present time the eyes of scientists are turned toward a new and entirely different theory of origin that has been developed in the past generation. It is the work of two Americans, Professors Chamberlin and Moulton, of the University of Chicago. It is known as the planetesimal hypothesis, to distinguish it from the nebular hypothesis of the Laplace theory. A planetesimal is simply a very small planet, and in general the theory holds that the planets were built up not from rings of gas but from small solid bodies by collision one with another. The detailed theory is picturesque and dramatic. It should be understood that this new hypothesis is now undergoing test; but it can be said that it presents far fewer difficulties than does the Laplace theory and has already gained wide acceptance.

The theory starts not with a huge sphere of thin gas but with a sun, like our present sun, somewhat larger. One must picture this sun, swinging alone through space, approached by another great sun. The theory calls for a case where these two enormous bodies come close enough to exert a powerful tug of gravity upon each other without being completely swept from their established orbits. Had they been so swept, they would have crashed together in one consuming cataclysm. For an additional point, the other sun could not have been too large, for its gravitational pull would then have disrupted our sun completely and scattered its fragments to the four winds. It can be seen upon what rare and delicate relationships existing between two great suns, rushing past one another, millions of miles apart in the cold night of space, this theory rests the birth of the earth.

What happened to the sun from this approach was exactly the sort of pull that the moon exerts upon the oceans

of the earth. That pull produces the tides, a wave lifted up from the level of the sea by the gravitational pull of the moon. Now the sun, intensely hot and gaseous, is far more elastic than the sea. Subjected to a similar pull, the theory holds that it would shoot out on opposite sides two great flaming tongues reaching millions of miles into space. Why two such projections on opposite sides? For the same reason that the moon gives two tides a day, although it passes across the sky but once a day. The moon draws a tide in its wake on the side of the earth toward it, and leaves a corresponding one on the opposite side. This is in accord with the laws of physics, though somewhat difficult to understand at first thought. The general idea is that the moon exerts its greatest pull on the water nearest it and its least pull on the water farthest from it. Thus two waves are set in motion, one the result of the direct pull of the moon, the other a bulge left on the far side where that pull is weakest. (The actual tides are the result of many complicated factors, but this is the initial cause.)

The sun, as a matter of fact, constantly shoots out tongues of flame to many thousands of miles. Astronomers have calculated that were it not for the resistance offered by the immense atmosphere of the sun, these flames would reach past us, licking the farthest planets. Not very huge protuberances are needed to account for the solar system. All the planets and their satellites amount to only $\frac{1}{700}$ of the entire mass of the solar system. A portion of these explosions would fall back into the sun like the water of a vast geyser, pulled in by gravity, after the other great sun passed on; another portion might be propelled so far that it would escape from the gravitational pull of the sun altogether and go wandering off into space, lost planets, lost for all time. The rest of the two arms would remain in equilibrium circling about the sun exactly as circle now the planets. The entire amount of matter exploded from

the sun need have been only one or two per cent of its mass.

The two arms would not stand out straight, however. Their ends would fall behind the revolving sun at the centre exactly as the spurts of fire from a pinwheel bend backward. There would result a thin flat spiral, with two curving arms, projecting from the sun as a centre. It was at first thought that this part of the theory was supported by the observed facts of the sky. By far the largest number of the nebulæ are believed to be spirals of this general description. There are hundreds of such nebulæ in the sky, of varying size, brilliancy, and distribution of parts, all possessing the form of a two-arm spiral. (Not a single one-arm spiral of the watch-spring type has been noted.) These nebulæ, however, are millions of times vaster than the nebula from which our system might have grown and their origin was probably due to other causes. They cannot be considered as akin to our solar system or as in any sense portraying its birth.

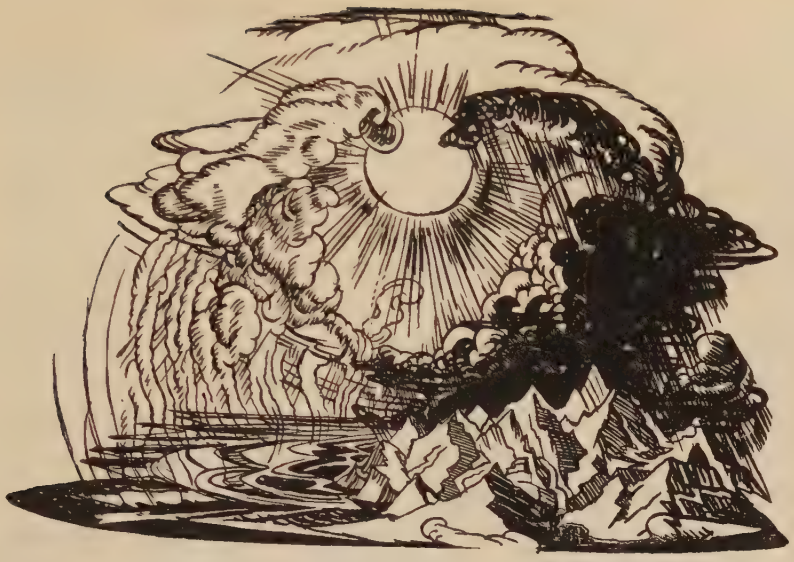
Such explosions as have been described would not be simple affairs. They would rather be a series of explosions, and each explosion would contain varying material, some light, some heavy. It is easy to see how great balls of matter would be erupted together. All alike would cool swiftly from a gaseous to a liquid, and perhaps even a solid, state according to this hypothesis. If there were a photograph of the spiral nebula now conceived as the ancestor of this system, it would show four small knots not far from the centre which would be the beginnings of the four smaller planets, of which the largest would be the earth; beyond this would be a belt with no centre of commanding size, this being the zone of the planetoids; and outside this would come four larger knots representing the four larger planets.

The courses of these knots and of the planetesimals would be anything but the orderly orbits, almost circles, of the present planets. They would crowd about the sun in a jum-

ble of ellipses, and collisions would be frequent. The large knots would receive and hold the infalling masses; and thus from small beginnings by a succession of collisions, great and small, would grow the planets. Each would ultimately clean up its orbit, excepting only the moons, rival knots of matter that escaped collision but were captured as satellites.

By this hypothesis the moon was conceivably never part of the earth but was from the beginning a sister planet. That the earth would become the master and develop the extraordinary adventures that it has, whereas the moon never would grow large enough to hold an atmosphere that would permit of life, may have been written in that first fiery hour. If the planetesimal theory is true, an incalculable complexity of chances governed these twin planets, crashing through space. The infall of a few tiny planetesimals may have determined the fate of the earth and of man.

It is impossible to suggest the mathematical computations, of physics, of celestial mechanics, upon which this theory largely rests. Nor is it practicable to discuss the objections that have already been raised against it. The two alternative theories and their modifications are before the world of science. It is for science to choose between them, or modify them further, or reject them all, or remain in an attitude of doubt. In the meantime we can regard them as trial balloons of thought, among the greatest and most beautiful ventures that the human mind has sent aloft. For present truth the most that can be accepted from them with confidence is that, in some fashion, the earth and all the planets are children of the sun.



CHAPTER III

THE EVER-CHANGING EARTH

I. A GAP IN THE RECORD

If human knowledge were an orderly and mature growth, this next and nearer age of the earth would be freer from doubt than the preceding. It is, to the contrary, wrapped in greater confusion. It is one of the many gaps in the story, gaps which, for one reason or another, continue down to modern times. For man has but scratched the surface of knowledge; and even where the facts lie open before him, in modern history, for example, they have been confused by prejudice and hates which have delayed and still prevent an impartial account. The story of the Reformation is almost as unsatisfactory as these pages upon the earth before it was an earth.

The doubts as to the manner in which the earth was born prevent a clear view of its period of youth, the millions of years before the present surface of the earth was formed and a record deposited in its crust of rocks which can be

read to-day with some certainty. The possibilities become more complex, the picture, for a time, more clouded. It is only a thin crust of the earth that geology can reach. What lies below in the vast heart of the earth is as hidden as is the interior of the sun or of Mars.

Furthermore, as might be expected, the oldest portions of this crust are the most torn, mingled, and confused. To interpret them is like trying to read a mass of pied type. Some day geology may be able to choose between the earlier theories of origin by deciding which fits best with its later facts. At present it cannot do so.

If the Laplace hypothesis could be accepted, the early years of the earth might be easily surmised. One can read a suggested description of them in many books. It is the older view. The earth slowly cooled from a ball of flaming gas to one of molten rocks and metals, and finally formed a solid crust outside a molten interior. It was then slightly larger than to-day and still intensely hot. Clouds hemmed it in on all sides in a perpetual night; water that condensed from the steam in the air and fell to earth hissed and rose instantly again; everywhere volcanoes belched forth their molten streams. There was neither ocean nor river nor soil nor sunlight. It was only after long ages that it cooled sufficiently to let the water of the atmosphere form oceans and rivers, and life became possible.

The planetesimal hypothesis permits a quite different picture, since it conceives that the offshoots of the sun cooled rapidly into solid masses. Professor Chamberlin applies his theory so as to keep the earth in a solid state throughout its growth. He does this by assuming that the infall of planetesimals was a slow rain of small bodies, a sort of star-dust, rather than rapid crashing of huge spheres. This infall would be spectacular—as if the earth were continually passing through swarms of huge meteors—but the increase in the surface temperature of the earth from the impact

would not be great. Such heat as the earth developed would come from the increasing pressure which its gathering size by the laws of gravity would exert upon the core. From this central heat, creeping to the surface, came a period of volcanic action while yet the earth was a third its present size. Gases thus belched forth gave the earth an atmosphere and surface water when it was but little more than half grown. Professor Chamberlin conceives that the oceans may have formed thus early in much their present shape (through the building up of continents by the infall of planetesimals), and even that life may have begun on this half-size earth already in appearance not far from its present form.

But this extreme view is not the only interpretation of the planetesimal hypothesis. If the planetesimals were of great size and plunged in upon the earth rapidly, they must have kept the earth extremely hot, and the earth may well have been molten when it had cleaned up the zone of its orbit and was full grown.

The range of possibilities is great, and one had best not attempt to carry any definite picture in mind. One needs only to remember the existence of this important gap and proceed to take up the record where it becomes comparatively definite. That is the point at which upon the earth full grown there existed the solid rock and the salt seas.

2. CLEWS IN THE ROCKS

The story of the surface of the earth is an endless cycle of building up and tearing down. For millions of years the earth has pushed up hills and mountains, only to see them levelled—this again and again and again. Nothing could seem more permanent than the great ranges, "the everlasting hills." Nothing is more certain than that they are doomed. Generations of mountains like them, standing where they stand, have come and gone. Millions of

years are needed for each levelling. The result is as definite and sure as that the castles of sand built by children upon a beach at low tide will be obliterated by the returning sea.

It is, as a matter of fact, the sea that will level them to some extent by these same waves dashing upon the coast, but chiefly in a very different fashion. It is the sea heated into vapor by the sun and blown inland to fall as rain upon rock and soil, washing their substance away, invisibly, insistently. Water is the great leveller of the earth's surface. As rain or snow or ice and aided by the force of the wind and the chemical action of the air, it is estimated to have swept away in the life of the earth the equivalent of twenty mountain ranges the height of the Rocky Mountains or the Swiss Alps.

What has built these generations of mountains? What are the forces corresponding to the children's shovels that throw up the castles of sand? They are the gradual adjustments of the earth's rock masses which, slowly moving, compel its crust to shift and crack and fold till it is wrinkled like the skin of a dried apple. They heave sea-bottoms high in the air, and drown continents beneath the waves; or squeeze great folds of the crust thousands of feet aloft as mountain ranges, or pour forth molten rock through long cracks or fiery gullets.

Thus it is the sun, drawing aloft the waters of the sea, that controls the changing face of the earth. Not only is this planet the child of the sun and circles through space, held firmly in leash of it, but the surface of the earth is still, day following day, moulded by the colossal power of the sun, driving its rays through 93 million miles of cold, empty space. Through the long ages the sun has ploughed and ploughed again the soil of its satellite. Every harvest of living things upon the earth, from the simplest sponge to man himself, is dependent upon the heat and light of the sun for existence.

The wearing down of the land by the weather is a monotonous routine that never ceases. Not so the upthrusting of the crust. This has come periodically, has been accomplished swiftly—within a hundred thousand years or so—and after the convulsions have ended the earth has settled down to periods of rest often long continued, lasting for millions of years. Each great upheaval has left the earth mountainous and rugged. This state is a period of youth. Then through the millions of years the rain and the winds eat away the great hills, rounding them off, sweeping their débris down the rivers to the sea. The lands grow old, until finally they become low-lying wrecks of their former greatness.

Man lives to-day upon lands that are, in this sense, fairly young. Much of the earth was but recently violently upheaved, geologically speaking. That is to say, its greatest mountain ranges were folded aloft only a few million years ago, and the rain has but begun to carve them. Never, perhaps, was the scenery of the earth as noble and varied as in this era of man.

But if the features of our earth have been rejuvenated, the material of its surface is old as old. It has been used over and over again. The very bit of earth on which one stands may have played its part on distant snowy summits, have travelled thousands of miles by brook and river, have lain in the ocean slime thousands of feet beneath the surface—not once but many times.

The fashion in which geologists have reconstructed a connected story out of this confusion offers the most absorbing page in science. Geology is the greatest detective story that has ever been written. When the waves of the sea wash away castles of sand on the beach, they leave no trace behind. The sand sinks back into its bed, and at the next low tide the beach is as if the shovels of children had never touched it. Fortunately for the geologists, the lev-

elling of the mountains works differently. When the soil worn away by the rain finally reaches a river-mouth, it sinks and spreads out in a thin layer on the bottom of the sea, that thickens with the years. This in time hardens, perhaps changes its chemical composition; at any rate, forms a distinct layer or stratum of rock (called sedimentary rock) which there is no mistaking. Thus in a few million years a rugged upstanding range of mountains a thousand miles inland may lie as a delta beneath the sea, a thin layer of wholly different rock.

If these sediments remained at the bottom of the sea, man would not be much the wiser for them. But the surface of the earth has again and again been thrust or folded high in the air. (Fish once swam over the Rocky Mountains.) The earth after burying beneath the sea its castles, that is, its mighty mountains, sometimes lifts the record of their scattering for man to study. It should be noted, too, that rivers sometimes deposit strata above sea-level, in lakes or at the edge of deserts, for example, or by flooding over an alluvial plain.

Here are clear and direct clues. To read such strata backward, beginning at the bottom stratum, which was obviously laid down first, is to have a rough account of the mountains of which they are the distant deposits. Unfortunately this record, sadly incomplete, is confused in countless ways. Strata were laid down only at the mouths of ancient rivers, at the edge of vanished continents. They cannot therefore give a uniform record the world over. Nowhere did there ever exist a complete sequence of these deposits. Geologists must find the deposit of a small mountain and a million years here, a great range and ten million years there, and piece them together as best they can.

Two things have aided. First is the fact that the surface of the earth has not heaved up and down restlessly like the waves of the sea. It is the modern belief of geolo-

gists that certain areas have generally tended to push up and certain others to sink down. The continents have changed shape frequently and completely, flooded by shallow seas; but certain portions of them called "shields"—Labrador, for example—have long been above sea-level. And the deeps of the oceans have probably always been under water. Why this is so is not understood, but the effect is obvious. The movements of the earth's surface have been much simplified, and there have been deposited in certain spots, which for ages were slowly sinking river-troughs, long series of sediments. In the Appalachian Mountains (long under the sea) there lie enough sedimentary rocks to make, if placed vertically, a depth of thirty miles. In the Rocky Mountains it is estimated that there are twenty miles. Impossible? Go out and watch any muddy river sweeping silently to the sea. It has been calculated that the River Thames in England carries away enough solid rock every year to build for London a new St. Paul's Cathedral. On the same basis, the Mississippi carries away a thousand cathedrals a year, most of which is deposited in a fan-shaped delta of no great size. These are only rough estimates. But one can imagine what enormous depths these deposits would total in the course of millions of years.

The second great aid of the geologist is the fossil. These skeletons of ancient animals preserved by the chance of burial in a favoring rock formation are a history in themselves. They tell not only the story of life but they shed a flood of light upon the changing surface of the earth. For the geologist a fossil is first of all a date carved by nature—not an exact year, but a general period. Knowing under the theory of evolution the general course of animal development, scientists can often arrange a series of fossils in exact order of time. They thus fix approximately the age of any stratum in which these fossils occur. A fos-

sil is, not less, a self-registering thermometer and a photograph of the passing scene. Was the sea in which, millions of years ago, this fish swam salt or fresh, shallow or deep, hot or cold? Who were his companions and what was their fate? Such questions can often be answered by the paleontologist, thanks to the patient observation and study of a century or more.

If only science possessed these silent witnesses, revealing so much by their presence, for every period of time and every condition of life! Unfortunately, this preservation of a skeleton over millions of years is a long chance. It can happen only under the most favorable conditions. Chiefly it is certain sedimentary rocks, formed under water, above all limestone, that contain fossils; and therefore it is chiefly marine animals which are preserved—or animals like reptiles living near rivers or bays.

Rarely a chance of a different nature preserves an animal entire; a great woolly mammoth has been dug out of the icy ground, called tundra, of northern Siberia, with the hide and flesh and hair intact after thousands of years, preserved by a natural cold storage. There have also come down an occasional footprint left in stiff mud (later changed to sandstone) by some great animal that drank his fill and passed on. For the geologist such a mark, millions of years old, is as full of meaning as a fresh spoor to a hunter of to-day. Only his quarry is an animal perhaps so long extinct that the eyes of man have never seen it alive.

Every one is vaguely familiar with the general facts about fossils nowadays. The word has even passed into the slang of the period. The idea is part, a tiny detail, of that great body of scientific truth which is our modern heritage. But it is only within the last two hundred years that the nature of fossils has been clearly understood. Fossils are common enough; have been observed for several thousand years. The Greeks speculated keenly about them,

but lacked the scientific basis to determine exactly what they were. Then followed that long pause of the human intellect, lasting nearly two thousand years, which is one of the most striking facts of historic times. As late as the sixteenth century the most fantastic explanations of them were put forward. They were freaks of nature; or formed in the earth under the influence of the stars. The versatile mind of Leonardo da Vinci, the great Italian painter of the fifteenth and sixteenth centuries, was one of the first to guess what they really were.

The Grand Canyon of the Colorado River shows all these clews in their simplest form. Here the strata have not been tilted on end so that a cross-section is exposed at the surface—like a slice of layer-cake turned on its side—the commonest form in which strata afford a chance for study. They lie much as they have always lain, and we see them only because the Colorado River has obligingly cut its way a full mile down from the surface and exposed their cross-section to that depth. You can descend to the bottom of the gorge on a mule in three or four hours. In so doing, you will have crossed strata which it took hundreds of millions of years to deposit; and you will, at the bottom, have reached the very beginning of geologic time, one of the oldest rocks known.

The main features of the rock formations stand out unmistakably. They give the canyon its strange beauty. The narrow gorge at the bottom is a mass of granite and other dark rocks showing no sign of strata—molten, or igneous, rock, in fact. Just above appears a set of strata much tilted. Above these and extending clear to the surface are level terraces showing clearly a long series of strata, all level and all laid down as neatly as if done by hand. It is the variety of these upper strata, varying greatly in composition and in color, that gives the canyon its splendor. Let us note one odd detail, a significant clue, in passing; the

tilted strata and the igneous rock reach a common level; that is, they together make a flat floor upon which the level strata rest.

Even an amateur detective could draw some interesting deductions from these obvious clues. The geologist has many other facts to help. The fossils, for example. Moreover, he can carefully compare the fossils of these strata with corresponding series of strata in the United States and elsewhere.

He finds only slight traces of fossils in either the dark rock at the bottom of the gorge or the tilted strata resting upon it. Just what life did exist at this time will be discussed in the next chapter. At any rate, in the seas then covering the earth there lived no animal with sufficient bones or shell to be preserved in quantity. Crossing the level surface formed by these two forms of rock, and reaching the lowest of the level strata, the geologist finds the first considerable number of fossils. They are primitive clams and periwinkles and so on—shelled animals. Next above come strata with fishes as well; and in the topmost strata there appear strange amphibians and the first reptiles. And there the record ends. Many more strata doubtless once covered the plateau through which the canyon runs; they have been worn away by the rain, and geologists must look elsewhere for clues upon which to base the remaining chapters of their history. Just consider what is missing; no trace is there of great reptile, of bird, of mammal. When the last of these rocks was laid down beneath the sea, the fish still ruled the world, and life had but just begun to climb out upon the dry land. The detailed story of the Grand Canyon as reconstructed by the geologist runs as follows:

The dark rocks at the bottom are a part of the oldest crust of the earth that is preserved to us. They are molten rock which probably poured up through rocks now van-

ished. Later they were terribly crumpled and crushed as the earth shrank in size; their surface must then have been extremely rugged and mountainous. But rain slowly, after untold ages, wore away this surface till it showed a flat surface. This has an extraordinary interest, for it is a piece of the oldest surface of the earth that has come down to us—preserved as were the fossils by the chance of an enduring burial. The whole dark mass then sank below the sea, and there, layer by layer, the first of the tilted strata were deposited upon it; only, the surface and the tilted strata must then have been nearly level, for marine sediments do not form on a steep slope. The upper layers of these tilted strata are ripple-marked and sun-cracked, and therefore must have been deposited above sea-level, perhaps as a river delta or at the edge of a desert. How did they become tilted and how was the level surface formed? After millions of years the whole floor, granite and sedimentary rock together, was folded high in the air in a great mountain range and exposed once more to long ages of weathering, which finally again planed it off to a dead level.

A colossal length of time is represented by the weathering and deposit of these early rocks—not less than half the whole geologic life of the earth, it is believed. That is to say, at least 250 million years. It forms one of the four eras into which geologists divide their records. They call it Archean, and it may be thought of as corresponding to the prehistoric period of the text-books of human history. For it is the period before fossils, and these are to the geologists what written records and history are to the historian of man.

Above this line (at which begins a clear record of fossils) stands a long record of quiet growth. Clearly the whole area must have again sunk below the sea and remained there undisturbed for many millions of years. The strata remaining carry in fact almost through the next geologic era, during which ancient forms of life were de-

veloped in the sea down to and including the amphibians. With their weakness for long, hard names, the geologists call it the Paleozoic era, which means nothing more nor less than the era of ancient life. Roughly speaking, this era lasted half as long as the preceding; that is to say, a minimum of 125 million years.

The last quarter of geologic time, forming two whole geologic eras, is thus unrepresented in the Grand Canyon —the mediæval and the modern, or the Mesozoic and Cainozoic in geological parlance. There is a certain suggestive parallel in the name mediæval for this succeeding era; for, as we shall see, it witnessed the rise of those strange and mighty animals the dinosaurs; that is to say, "terrible reptiles," long since extinct, and as alien to our modern world as much of mediæval thought is difficult for the modern mind to comprehend. The modern era begins, logically enough, with the rise of the great mammals and the modern forms of life culminating in man.

We do not have to climb to the bottom of the Grand Canyon to find the earliest known rock, the Archean granite and the sedimentary rocks without fossils. It comes up to meet us at the surface over a considerable portion of the globe—one-fifth of the land area, it is roughly estimated. That is to say, whatever sediments once overlaid this rock have in these regions been washed clear away. It is only because the Grand Canyon is young that Archean rock is there buried; the covering will be washed clear away in a few million years. In North America the chief area of this rock begins in Labrador, runs southwest into northern Wisconsin, including the Lake Superior iron region, and thence turns north to the Arctic Ocean. Granite, twisted and torn, forms a large portion of this rock. But not all granite is Archean, it should be understood; molten rock, of which granite is typical, has poured up from the heart of the earth in every era. The Archean rock is identified

in the Lake Superior region at the surface exactly as it is identified at the bottom of the Grand Canyon—by the fact that where it runs below the surface and disappears, the rock immediately resting on it is exactly the early sedimentary rock containing the first primitive fossils which rest upon it in the Grand Canyon.

These early formations are greatly confused and it has been a difficult task to classify them. Much important work is now under way. The Old Archean era is being divided and renamed. But no generally accepted classifications have been reached. There is still some question as to just what the Archean igneous rock was. When first discovered, it was taken to be a part of the first molten crust of the earth. The weight of opinion is now strongly against this view. It is felt to be extremely unlikely that we shall ever find any trace of this crust. As for the granite at the bottom of the Grand Canyon and covering Labrador, etc., in great sheets, the tendency is to regard it as produced exactly like more recent igneous rock; that is to say, it welled up from below between ancient strata of sedimentary rock long since vanished.

There have been many ingenious speculations about the composition of the interior of the earth, but about the only fact yet established is that it is much heavier than the crust. The older view went on to consider that the core of the earth, still very hot, was slowly cooling, and that it was this cooling which caused the earth to shrink and the crust to crack and fold. It is still believed by some scientists that the earth is shrinking, but whether cooling is the cause has been seriously questioned. We had best consider this whole question of interior temperature as still unsolved. As a fresh complication there enter here as there enter into the question of the heat of the sun the new discoveries of radioactivity. Just what this break-up of certain atoms means the chemists do not yet know. We shall see the pos-

sibilities in some detail when we come to the story of modern science. For the present it is enough to note that here, as almost always in science, a great increase of knowledge has served to reveal yet greater problems and mysteries. The inside of the earth may even be growing hotter instead of cooler.

As for the surface of the earth, there is more satisfactory evidence once we get beyond that initial stage already discussed. Whether the earth's surface was molten or not at completion, it did not stay thus hot long. Least of all has it steadily cooled down to the present time. The prevailing view now is that the climate of the earth has been through great periodic shifts from hot to cold and cold to hot, but without any general tendency one way or the other. If we consider that the climate of the earth has been generally mild with brief interruptions of great cold we shall probably not be far from the truth.

What produced these periods of extreme cold? Will they occur again? If so, how soon? It would be easy to give a long series of possible answers, but the fact is that science does not know. The last period of great cold that covered northern America and northwestern Europe with solid ice hundreds of feet deep and dumped its loads of boulders and clay as they melted is not far distant, geologically speaking. It occurred within the last period (the Pleistocene) of the modern (the Cainozoic) era. That is to say, they all occurred within the last million years or so, and the last cold period ended not more than 25,000 to 50,000 years ago. That may be a long enough period, humanly speaking; all historic time does not go back much beyond 5,000 years. It is close enough to have a very real interest for us of to-day.

We need have no fears for ourselves or our descendants for many, many generations—such extreme cold approaches slowly, imperceptibly, over hundreds of years.

But what of the civilization that we are part of, that we are all helping to build? What part of it would survive another great ice age? We shall find in a later chapter that primitive man, our ancestor, first developed upon the earth during this ice age, and survived periods of great cold; at any rate, retreated safely to warmer areas before the downcoming glaciers. Would the marvellous and elaborate civilization of modern man fare as well? We cannot help but wonder.

So it is of real interest to put the question to geologists whether in 25,000 A. D. New York City and Paris and London will return to the climate of Greenland that they had in, say, 25,000 B. C. Their answer must be, as suggested, that as yet we have not the slightest idea. Until the causes of glaciation are better understood it is idle to base a guess upon science. Here again science has gained a wealth of extraordinary wisdom. It has shed a flood of light upon those questions as to the origin and growth of the world which the ancient myths sought to answer. But in so doing it has revealed other problems, it has raised unsuspected doubts and possibilities that it as yet has not begun to clear up. Few men believe to-day that the world is coming to an end at a fixed day or soon, as was a common belief in the Middle Ages. No man can escape the fact that ice not so long ago covered a mile deep much of the area of our present highest civilization and, so far as science can say, may again cover it.

The question of time, of the age of the earth, and the length of years assignable to each geologic era, has already come up. We are in a position to see how impossible it is for the geologist to estimate his eras in accurate figures. Of the order of events, of the proportions of elapsed time in each great era, he can form fairly clear ideas. He cannot with any certainty state his ideas in an exact number of years. No geologist pretends to, and the figures here

given must be understood as merely rough estimates. They will give us a rough limit, a maximum and a minimum, between which we can perhaps make that tremendous stretch of time a little more vivid.

The deposit of sedimentary rocks is the first source of a time schedule. Geologists have measured carefully the existing sedimentary rocks. They have also endeavored to estimate the length of time which a river takes to lay down a given kind of sediment. But the factors making for uncertainty are great. The time needed to deposit a rock is most difficult to estimate.

When a country is young, recently upheaved that is, the streams are steep, the action of rain is violent, and the land is swept into the sea rapidly. (The ancient deposits often show this condition clearly in the coarse sandstones.) As the hills are rounded off the process slackens; until as the continents approach sea-level erosion all but ceases. Moreover, the deposits vary greatly over the earth, as we have seen. Taking all the sedimentary rocks in order, assembling them in a column each at the greatest thickness at which it anywhere occurs, geologists estimate the total depth of deposits at over sixty miles. The maximum thickness of a stratum naturally extends over a small area, to wit, the under-water delta of the rivers which happened to record the maximum force of erosion during the period in question. The longest record found in any one region is twenty miles—in the Appalachian Mountains. The total depth of sedimentary rocks in any one spot is usually under a mile. In the Grand Canyon, for instance, there are only about 4,500 feet of the level strata (the Paleozoic); in the Appalachian Mountains there are not less than eight miles of these same strata identified by composition and by fossil life within them. This means simply that the sediments of this long period happened to be deposited more rapidly and completely at the river-mouth which was later raised into the Appalachian Mountains than at the river-mouth which

was later raised into the plateau of the Grand Canyon. For a final difficulty, this geologic column is by no means complete. It is added to constantly as research proceeds. Probably it never can be completed because of the sediments which lie hidden beneath the seas. Perhaps one-half of the total has now been recovered; but that is only a guess. There are yet other complications, and you can see that there is no basis for accurate figuring.

But certain broad conclusions can be drawn. During the Archean era more sediments were laid down than in all three eras since. Geologists consider that there is warrant for estimating roughly that at least one-half of all time elapsed in this prehistoric age before fossils, in any considerable numbers, appeared. The ratios of the remaining three eras have been similarly estimated on the basis of the deposits within them. The Paleozoic comes next in length, occupying almost a third of the life of the earth. The Mesozoic is a little more than a tenth. The Cainozoic is barely a twentieth.

When we seek to express the length of these eras and the total life of the earth in years we face an even higher degree of uncertainty. Most of the estimates in years based exclusively on the time required for the formation of the sedimentary rocks have been under 100 million years. Yet distinguished geologists have estimated this required time as high as 400 million or even 800 million years.

These estimates based on sedimentary rock can be compared with estimates reached by other methods. One of these is based on the time required for the formation of the salts in the ocean. The primitive waters of the earth were fresh, it is believed, and the salt was slowly washed out of the rocks. Most of the estimates reached by this method run close to 100 million years. Yet a recent calculation gives an estimate of between 210 and 340 million years.

All earlier methods of calculation have of late been overshadowed by conclusions drawn from the newly developed

theories of radioactivity. Physicists now believe that a transmutation of some chemical elements of matter is taking place as a result of radioactivity, that uranium, for example, slowly produces lead. The rate of change can be estimated and so can the amount of lead in the early geologic formations. While such calculations are rough, a number of independent estimates based upon studies of different regions and different elements all point to a very long length of time, in the neighborhood of a billion 400 million years, as the age of the earth.

These figures are sufficient to show how completely open we must keep our minds on this interesting point. In a general way it may be said that the trend of estimates has been upward. Lord Kelvin, the British physicist, calculated in 1862 that the earth might be only 20 million years old. This was a view exceedingly difficult to square with the theory of evolution, which requires a vast period for the gradual development of life. Later discoveries have tended to disprove the calculations of Lord Kelvin, and to give a far longer period. If we take 500 million years as a probable minimum and a billion 500 million years as a probable maximum, and add that recent views tend toward the higher figure, we shall express roughly the prevailing scientific thought of the day.

This whole question of the age of the solar system and its possible life in the future has been revolutionized in the last few years by the discovery of radium and radioactivity, already referred to. The fact that certain elements are breaking up and changing into other elements, giving off heat as they do so, supplies an entirely new and unsuspected source of energy in the universe. Heretofore the life of the sun had been calculated on the theory that its continuous heat was the result of shrinking, and it was possible to calculate roughly how long this process had lasted and might be expected to continue. Now the whole question of the

sun's heat as of the earth's heat is transformed. No accurate estimates are as yet possible, for the study of radioactivity is still young. But it seems safe to assume that this new source of energy will account for an extremely long past and provide for an indefinitely long future.

3. THE FOUR GEOLOGIC ERAS

The four great eras of geology, Archean, Paleozoic, Mesozoic, and Cainozoic, have already been described. These divisions are simple enough in their plan but they have been made absurdly difficult for the ordinary reader by the jaw-breaking names that have been attached to them. The subdivisions of these eras, called periods, have names equally confusing. Some of them take their names from the place where typical formations were first found—Devonian from Devon in England, for example. But Carboniferous and Cretaceous describe formations, coal-bearing and chalky; and Pleistocene (the Great Ice Age) is coined from the Greek and means simply "most recent." There is no reason why the general reader should attempt to memorize this patchwork. The four eras are important; and so, too, for general reading, is the fact that geologists often use Primary, Secondary, Tertiary, and Quarternary, to name these same eras in a most confusing manner. These numerical titles date back to a time before the prehistoric or Archean era was recognized. Thus Primary is Paleozoic, Secondary is Mesozoic, and (here is the greatest confusion) Tertiary and Quaternary divide Cainozoic time between them. Quaternary begins with the Great Ice Age (the Pleistocene period) and covers the years since, usually known as the Recent period, it is convenient to remember.*

Archean Era. As the curtain lifts, there were lands and oceans, sunshine and tides, much as to-day. But—and

* It is an amusing commentary on geologic language that the word Pleistocene, meaning nothing more nor less than "most recent," should now find itself placed just before the "Recent period."

here is the almost unthinkable difference—there was no living thing to be seen, neither grass nor tree growing on the rocky hills nor fish in the sea, nor life stirring anywhere. A bleak, gloomy world of rock, lashed by the rain and torn by torrents, as wild and desolate as the Labrador coast to-day. There were probably more volcanoes than to-day, more earthquakes, more upwellings of molten rock. In these first barren years the world was shaken and torn as never thereafter—a world so different as to be almost unrecognizable. It has been compared to the moon in appearance. Yet already there was one vital difference. The surface of the moon is dead and unchanging; it presented to the earth then the same face that it presents to-day. For it is too small to hold an atmosphere. Whereas upon the earth, from the first, the vapor which arose from the sea remained aloft in clouds until it fell again as rain—and the great labor of levelling the high places of the earth began its appointed round.

For the first half of this era, however, weathering was not the prevailing force. Molten rock reached the surface so fast that it dominated the scene. To this period belong the great shields of Archean granite—like Labrador—not, probably, part of the first surface of the earth but pressed up under it in this early period. In the second half of the era began the great series of sedimentary rocks which continued down to the present time. There are three known series of this era. Thus at least three times the surface of the earth was piled high aloft and each time slowly worn away through millions of years.

Somewhere in this great stretch of time covering half the life of the earth, living things appeared for the first time upon the earth. The almost total absence of fossils for this era makes the history of its living things largely a matter of surmise. But they must have existed, in the water at any rate, and by the end of the era there must have been stirring most of the jellylike, backboneless animals.

An era of 250 million years that culminated in the production of worms may not seem like a great triumph. But right here, none the less, was the most extraordinary and inexplicable event of the whole story.

Paleozoic Era. There lay between these two eras one of the great mountain-making movements of the earth—"critical periods" these have been called, for at such times existing plants and animals are hard put to it to survive. The lands are high and the climate severe. The crumpling of the earth's surface produces long lines of weakness, through which the molten rock breaks in huge lava floods. (Volcanoes are a surface symptom of underlying stresses and disturbances—like the rash that accompanies a disease.) It is an hour of change and terrific test, for all its infinitely slow and majestic progress. Some geologists call this particular upheaval the Grand Canyon Revolution, for it was at this time that the Archean rocks at the bottom of the canyon were folded high aloft, perhaps as high as the present Alps. As we have seen, these great mountains were later worn away to sea-level, and it was with this long, peaceful age of erosion that this era opened.

This great upheaval is thought to have elevated most of North America above the sea for the first time. In general this whole era was one of relative quiet. Yet the disturbances of the earth's crust were sufficient to flood the interior of the continent again and again with a shallow inland sea. Along the eastern and western coasts, largely beyond the present shore-lines, were uprising areas which held their own. Each cycle of erosion slowly raised the level of the seas and slowly spread their waters over the low plains of the United States. Then as each uprise of the crust arrived the waters receded far more quickly than they came. In this quiet, rhythmical advance and retreat of the sea over the heart of North America, lasting not less than 150 million years, great events were occurring. The mollusk got his shell, and, more important, the fish got the

back-bone, thereby placing himself in the great succession of animal advance. Fossils thus became abundant for the first time. And of prime importance to man of to-day, toward the end of the era fernlike trees developed in the swamp-lands which under the pressure of later rocks were to become coal.

The era closed, as it began, in a terrific upheaval—the Appalachian. During all of Paleozoic time a separate continent had stood along the Atlantic coast, including that line and extending east and many miles beyond it. Where now are the Appalachian Mountains was a long trough of the sea, lying off the western coast of this ancient continent. This trough had generally subsided, and in consequence had been generally under water. It had therefore received a long deposit of sediments from the continent to the east—thirty or forty thousand feet in depth. We are to think of this long narrow trough of deposits as an area of weakness by comparison with the harder rocks on either side; and when the next "critical" hour arrived and the shell of the earth crumpled, it was precisely this trough of sedimentary rock which yielded and was folded violently aloft along its axis. What had been a sea-bottom for 30 million years was slowly pushed skyward into a towering chain of mountains extending from Pennsylvania to Alabama, perhaps as high as the Alps of to-day. Our Appalachian Mountains of to-day stand on the site of these Paleozoic ranges, but these ancient masses were worn completely away in the course of time. What we see now are lesser mountains uplifted in Cainozoic time, as a minor part of the next great upheaval, when the Rocky Mountains and the Andes were folded aloft from Alaska to Cape Horn.

The same great adjustment of the earth's shell folded great mountains aloft over Europe and Asia. Ireland, Wales, and northern and central France (then parts of one great continent) still show the stumps of these ancient

ranges. The folding ran across central Germany and onward clear to the Pacific. The Ural Mountains were begun; and to the southeast the upheaval crossed to Australia, then connected to India.

In these last thousands of years that closed the Paleozoic era came also the first great glaciation. This was millions of years before the recent Great Ice Age, the manifold effects of which are still with us. This earlier Ice Age is, if anything, more difficult to explain than the later; for its traces are localized in India, Australia, and South Africa, far distant from either pole.*

Mesozoic Era. We enter a period one-third as long as the preceding and far more violent. It began, as we have seen, with the great Appalachian uplift. It ended, after 15 million years or more, with a great uplift along the Pacific which folded aloft the Rocky Mountains. In between came lesser disturbances that raised a long series of mountains east of the Appalachian, of which the Palisades on the Hudson (a flat sheet of molten lava) are a relic, and began the upraising of the Sierra Nevadas and the coast range of California and the Cascade Mountains to the north. The scene of activity shifted from east to west. The eastern coast remained continuously above sea-level, and the record of sediments for the era is small; they probably lie at the bottom of the Atlantic, a typical lost chapter of geology. In western North America the record is long. California, which had been under water, was raised above the sea, and the continent began to take on something of its present shape. The waters of the Pacific were cut off from the continent for all time. But toward the end of the era there came a great sinking of the western interior of North America, and a long, narrow inland sea spread from the Gulf of Mexico to the Arctic Ocean, sometimes called the

* The proof of this glacial period is now considered conclusive by most geologists. There is strong evidence of yet earlier glaciations, at the beginning of Paleozoic time and in the Archean era.

Coloradoan Sea. In width, it extended from Dubuque to Salt Lake City, its western edge reaching the site of the Rocky Mountains. All over the world the same conditions prevailed. A wide sea, spotted with islands, stretched across southern Europe and northern Africa to the Indian Ocean to the southeast and far north into Siberia—the giant ancestor of the present Mediterranean. In Europe the area of this greatest invasion by the sea is identified by the white chalk then deposited. Hence the name of the period, Cretaceous, which means chalky. Chalk, like some limestone, is formed of the shells of tiny mollusks. The chalk cliffs which line both sides of the British Channel for many miles are nothing but colossal beds of shells, laid down under water at this time when the sea covered the southern half of England and all of France.

There followed at the end of this era the great upheaval already mentioned as creating the Rocky Mountains. It was one of the greatest periods of mountain-making the world has seen. Mountain chains were folded aloft, roughly parallel to the Pacific coast, from Alaska to southern Mexico and from Panama to Cape Horn.

Mesozoic was the age of reptiles which rose to gigantic size and then suddenly disappeared from the face of the earth. For ages they dominated land and sea and sky. But already, by the end of this era, the future of modern life was assured, for the first bird had appeared and a few small inconspicuous mammals, no larger than kittens, developed and managed to persist, pigmies in an age of giants, the future ancestors alike of tigers, elephants, and man.

Cainozoic Era. The first portions of this era are commonly called the Tertiary by the geologists. In this Tertiary the continent of North America completed its modern outline. Florida appeared as an island and became a peninsula. The delta of the Mississippi began at Cairo, Illinois, and worked southward with the advancing coast-line. No great invasion by the sea occurred.

In Europe more remained to be done. The greater Mediterranean persisted for a long while, and united with the Arctic Ocean east of the Ural Mountains. Then about the middle of this Tertiary period there began the great Eurasian uplift. From Spain to China, from the Atlantic to the Pacific, there began slowly to fold aloft the colossal ranges of mountains of which the Alps and the Himalayas are the summits. It is interesting to note that this great Eurasian folding ran east and west, in sharp contrast with the great foldings of the western hemisphere, all of which ran north and south. The eastern half of the sea disappeared, and by the end of the Tertiary period the Mediterranean had appeared in its present form. The Caspian Sea was left as a relic of the ancient ocean.

While the Alps and the Himalayas were being elevated in Eurasia, the entire western area of North America was again violently disturbed. There were active volcanic regions from Alaska to Mexico. The entire area of the Rocky Mountains, which had been much reduced in height by weathering, was pushed aloft again several thousand feet. As a result of this elevation the Colorado River began to cut its gorge—which makes the Grand Canyon a very young production, geologically speaking. Similar upheaving took place in South America and along the coast of China. Volcanoes now fronted the Pacific Ocean, east and west, "a ring of fire." The earth as we now see it, barring only a few hundred thousand years of wear and tear, stepped forth to view at the end of this Tertiary period. It is in the magnificent handiwork of this last great "critical" period that we now live.

Some geologists, indeed, consider that the period itself is actually with us to-day, that the adjustments of a "critical" period are still taking place. Perhaps they are right. We cannot be sure.

It is easy to see the results of such a period, but its processes are too gradual to be measured while in action. True

or false, the view is valuable as giving us a notion of the infinite slowness with which the most magnificent revolutions of the earth's surface come invisibly to pass. The "upheavals" and "crises" of which we speak spread over tens of thousands of years.

The Tertiary was the age of mammals which developed from the small primitive forms that led a precarious life among the great reptiles to an extraordinary array of powerful and intelligent animals—horses, camels, elephants, mastodons, sabre-toothed tigers, etc.

With the Quaternary began that most mysterious of all periods, the Great Ice Age. We have noted earlier periods of glaciation. Now, again, for reasons as yet unfathomed, the usually mild climate of the earth turned to cold, and for thousands of years great ice-sheets blotted out two considerable areas of the globe. These sheets have to-day retreated but they have not disappeared. Greenland still lies under a gigantic sheet of ice perhaps 8,000 feet thick. So does all Antarctica, the continent lying about the South Pole. The local glaciers scattered throughout the world—even near the equator—at great elevations, flowing down from our high mountains like frozen rivers, give but a scant idea of these vast ice-sheets, their intense cold, their colossal power, their terrible beauty.

We are to think of this white terror inching down from the north through the Pleistocene centuries till all Canada was covered, and the edge touched Oregon, Idaho, Montana, and turning southward midway across the Dakotas reached the northeastern corner of Kansas. All the States which now border on the Great Lakes lay under the shield, and all the northeastern States as far south as New York City.

There were three of these great ice-sheets in America, varying from a hundred feet thick to a mile or more. All slid slowly seaward as a rule—wherever the slope of the

earth and their tremendous weight drove them. They scoured out ponds, deepened valleys, deposited great beds of clay and heaps of boulders which they had carried down with them.

The other great ice-sheets were in northwestern Europe. They covered the British Isles (excepting the southern coast), Holland, Germany, and a great sweep of country about the Baltic. The eternal snow of the Alps descended from 8,500 feet to 5,500 feet, spreading over a wide area. Everywhere in the northern hemisphere was a colder climate than is known to have existed before. The reindeer ranged over the Pyrenees; the walrus was at home on the shores of Virginia.

There is unmistakable evidence that the ice advanced, retreated, and advanced again. Some geologists believe they have evidence that six such advances occurred with milder climates lying between. Most scientists consider that there were two or three. But the question is much vexed, and we had best leave the exact number open.

There is also evidence that the climate of the whole world was affected, became generally cooler. Yet the intense glaciation was restricted to the areas of Europe and North America described. Elsewhere glaciation was found only at high altitudes, as to-day. This peculiar localization of the Great Ice Age, around the North Atlantic, roughly speaking, presents one of its most puzzling features. It has been sought to explain this condition on the theory of polar wandering; that is to say, that the axis of the earth has shifted, and that in this glaciation the North Pole was somewhere in Greenland. In the earlier glaciation the North Pole was in Mexico and the South Pole in the Indian Ocean. But this theory has won little support. More faith is now placed in the effects of changes in the earth's surface which change air-currents and ocean currents. Undoubtedly, too, the sun's energy is variable, and glaciation

may have resulted from a prolonged lessening of its heat. Many other theories have been put forward. None is without objections, and the whole problem is still open. As was stated before, scientists do not know why glaciation occurred, and are utterly unable to predict whether it will occur again, or late or soon.

In one of these warmer spells, as the ice-sheets withdrew from Europe, a strange animal appeared upon the earth, somewhat resembling the great apes but widely different. He was man, and destined henceforward to hold the centre of the scene.

Lost Continents and Land Bridges. The shape of the early continents and oceans, their connections and their fate, have been constant sources of speculation by geologists. It cannot be said that many secure conclusions have been reached.

A "lost continent" which has gained considerable acceptance has been named Gondwana Land, after a district in India. It is conceived of as a great east and west continent south of the equator, connecting northern South America with Africa and extending across the Indian Ocean to India and Australia. It is held to have been in existence during most of the Paleozoic era. If so, the Atlantic portion, connecting South America with Africa, sank beneath the ocean in late Mesozoic time. The connections between Africa and India and between India and Australia disappeared later, in the Cainozoic era.

It is the fossils which have led to the belief in this ancient continent. There is in particular a flora of which a certain fern is typical, that occurs in the strata of Paleozoic time only in Brazil, Africa, India, and southern Russia and Australia. It is difficult to account for this peculiar distribution of these plants except on the theory that these continents were at this time united.

As an alternative theory other geologists have suggested

that there was a land connection between Australia and New Zealand and Antarctica (the continent around the South Pole), and that South America and Africa were connected with the same continent. This is a less daring hypothesis and probably has more support. It would account for the same distribution of flora as of Gondwana Land, it will be noticed.

There is much more general agreement among geologists in favor of the view that the continents in the northern hemisphere were connected at this time, almost the world around. The fossil evidence of such connections is very strong. Thus the mammals of Europe and North America are held to have intermigrated via Greenland until not long before the Great Ice Age of the Pleistocene period. Then the connection between Greenland and Great Britain and Scandinavia was broken, and also the connection between Greenland and Canada.

Perhaps at about the same period, North and South America, which had been separated during Paleozoic time, were united by the uprisings of Central America. As for the much-debated land bridge between Alaska and Siberia —where now is Bering Strait—it is thought to have existed until possibly flooded by the sea at this same time, when the connections of America with Greenland were broken. But if so, the flooding was shallow (as to-day), and the bridge was probably re-established through much of Cainozoic time. The camel, or rather his ancestor, originated in North America during early Mesozoic time, spread southward across the new land bridge to South America and northward across the land bridge to Asia. Large camels were still numerous in North America well down through the Great Ice Age.

England was attached to France until fairly recent times, well down in the Great Ice Age. The first men probably walked across a valley where now lie the Straits of Dover.

Similar land bridges may have connected until the same recent period Spain with Africa, Italy with Africa (via Sicily and Malta), and Turkey with Asia Minor. If the Straits of Gibraltar were in fact thus closed, the sea within was lower than the ocean without, and there may well have been a terrific flood when the Atlantic first poured through the narrow gates. But this view rests on a slender basis. It is not to be classed with the solid facts of geology.

Of these facts, nothing is clearer than that the same forces which we have been tracing through millions of years are still active about us. A tower erected at the mouth of the River Rhône in 1737 is now nearly four miles inland. At the mouth of the Po, the city of Ravenna, which was once an island city like Venice, has now a wide stretch of downs and a pine forest between it and the sea. The Mississippi adds a mile to its delta every sixteen years. For the reverse, the sea wears away the Yorkshire coast of England seven feet a year; since the Norman Conquest a strip a mile wide, with farms and towns, has been lost. In addition, there are warpings of the coast, wide movements up and down, which can be observed in action. The site of the old town of Louisburg, on Cape Breton Island, Nova Scotia, has sunk beneath the sea. Near Naples there are the ruins of an old Roman temple which show plainly that they at some time sank beneath the sea and were exposed to the action of sea-animals for a long period. They were later raised again above sea-level, where they now stand.

"Terra firma" is anything but the solid base that the words imply. It is slowly, invisibly stirring the world around—as it has stirred since the earth came into being. The crust is still wrinkling and warping as it adjusts itself to the shifting masses; and the ridges, great and small, thus folded aloft, are still unceasingly swept toward the sea by the rain and weather. The cycle of change shows no pause, and science sees no hint of an end in sight.

CHAPTER IV

THE MYSTERY OF LIFE

It was the teaching of Aristotle that worms, insects, even fishes, could originate in mud—not be born of other worms or insects or fishes lying in mud, but be born directly from the mud. Spontaneous generation the process was called, and it was believed in down to the seventeenth century A. D. A typical mediæval writer, Swan, remarks that a dead horse breeds wasps, a mule hornets, while from an ass arise bumblebees. All this seems absurd in the light of modern science; yet there is still misunderstanding of this peculiar quality of life. Worms cannot be born except from other worms, just as human beings cannot be born except from human beings, we know. What of germs, what of all the small organisms, visible only under the microscope, that cause milk to sour, apples to rot, cheese to mould, people

to fall sick? Do they not appear from nowhere, are they not self-starting, so to speak? It was the great achievement of Pasteur, the French chemist and biologist of the last century, to prove that no life originates in this way. If germs are completely excluded from a sealed jar, none will appear therein. When apples are boiled and canned (thus, if the canning is expertly done, killing all germs in the apple and keeping out the germs that are present in the air), no worm ever grows, because any worm eggs that may have been in the apple have been killed, and, equally, no rot or mould appears, for any microscopic germs which might give birth to their swarms of descendants have been killed. Asepsis in modern surgery, by which wounds are kept from infection, rests upon the same principle, though obviously more difficult to apply, for one cannot shut up a human being in an air-tight jar.

Life is so profuse and cheap about us that it is hard to realize that it is not originating afresh a thousand times a day. But so far as scientists can ascertain, it is not. New living things are being born in enormous numbers every second of time. They are born only of other living things. If one wishes to stock a pond with fish, one must get the living spawn of other fish. To grow a field of corn, one must plant the living seed of other corn. There is a chain of life in every species, animal and vegetable, a chain that runs back generation by generation, from existing animals and plants all the way to the mists of Archean time. It is only because that chain is unbroken that there is life on the earth to-day. Stated in another fashion, all living things, including man, are part of one family tree, the branches and trunk of which are to be sought through all geologic time. It is the roots of that trunk, the beginning of life upon the earth, that must be considered.

The difficulties of the problem are obvious. Life originated upon the earth millions of years ago. At one period

there was a lifeless world, displaying heat and cold and substances forming and reforming—the physical and chemical processes, in short, exactly as they occur now. But there is not one cell of living matter. The next period there appears this strange thing, so primitive in character that it is impossible to say whether it is animal or vegetable, a mere piece of jelly, perhaps, floating in the sea, but possessing new and extraordinary qualities. It has the power to absorb material (to feed itself), to grow and to reproduce (to split into smaller pieces of jelly when it becomes too large, the most primitive form of birth). There is no satisfactory definition of life, but such qualities as these are of its essence.

One can only guess the period at which this stupendous event occurred. One cannot surmise how long the production of such a floating jelly (if life did begin in the sea) lasted. But at some point the direct production of living matter from non-living matter apparently ceased. The future of life rested with the mass of living, reproducing matter by this time brought into existence. There is thus a most extraordinary development of a new substance possessing amazing qualities, and this creation limited to a brief period in the earth's history.

No wonder there has always been and is to-day a school of thinkers, called vitalists, who see in this event no mere orderly development of physical events but an interposition by forces not yet touched by science, from a world of spirit, perhaps—or, in the phraseology of religion, the hand of God reaching down and directly adding this strange thing, life, to the physical world.

There is a later event in evolution which offers much the same problem. That is the development of consciousness. Nothing seems simpler to man than the fact that he sees and knows. Consciousness is as unmistakable as life. Yet it is just as difficult to analyze or to define or to compre-

hend. Here again is another step at which there is a colossal difficulty for science and a corresponding tendency to seek an explanation in the supernatural.

Science has not travelled far toward explaining this event in terms of its present outlook. Biology and organic chemistry have accomplished much in the analysis of living matter. The chemists have studied the peculiar substance of which all living things are composed—protoplasm, they call it, which means first substance. They know that it is grayish, sticky, semitransparent. They know what elements compose it, but they do not know how those elements are arranged in it. For that arrangement is exceedingly elaborate and complicated; and it breaks down and disappears as soon as the protoplasm is subjected to chemical analysis. In short, the arrangement is an essential part of life, and the chemist, unfortunately, cannot commence to separate protoplasm into its parts without killing it. The secret vanishes as he reaches for it.

The biologists have learned that this living stuff or protoplasm of which man is made is divided into tiny units, more or less round, covered with a thin wall, visible only under the microscope, called cells. There are millions of these cells in a man or in any of the higher animals. At the lower end of the scale are animals consisting of only one cell—the bacteria of disease, for example, or the famous amœba, the simplest animal known.

For all this progress in analyzing life, science has not succeeded in making protoplasm. The complex, delicate arrangement of common elements in a living substance, that nature accomplished millions of years ago and that all living things reproduce so profusely to-day, has never been imitated by man. Science has not made a single cell of living matter out of non-living matter. If all living things upon the earth except man were to die, scientists could not replace them with a single blade of grass. Man would per-

ish, too, because he would starve to death without flesh or vegetables to eat.

The mystery of how life appeared upon the earth is thus still unsolved by science. So difficult has the problem seemed at times that great scientists, Lord Kelvin, of England, and Svante Arrhenius, of Sweden, have put forward the extraordinary suggestion that the germs of life came to the earth through the interstellar spaces from other planets or suns. This seems incredible, and the scientific difficulties involved in it are many; it is, however, a possibility. But, in any event, it does not explain the origin of life; it merely pushes that occurrence far away to a distant spot.

In face of this unsolved problem, what is the attitude of scientists? What should be our attitude? Some scientists hold to the vitalistic theory, described above. But the majority of scientists do not consider that the time has yet arisen for turning to such an explanation. Here, they argue, is but another difficulty for science to study and solve. It happens to be a particularly baffling one. But as yet there is no clear evidence that there are any facts involved which will not some day be explained by physical and chemical laws. All modern science has progressed, they argue, on the theory that the physical universe is one, that a chain of cause and effect binds together all things that happen from the lowest to the highest. It is too early to reject this theory in this single case of life and assume an impassable gulf between living and non-living things.

The second of these two theories is often called the mechanistic theory of life—because it seeks to explain a living thing exactly as it explains a steam-engine, let us say. But it by no means contradicts the idea of a God working through the laws of evolution. As to this religious interpretation of life, science here, as throughout, neither affirms nor denies. The appearance of life upon the earth thus remains one of the unsolved riddles of the universe. It may

always remain so. We can believe as we will with respect to it provided we take care to leave science wholly free to study it without prejudice.

CHAPTER V

FROM AMŒBA TO MAN

I. THE THEORY OF EVOLUTION

THE amœba walks with his stomach, it is sometimes said. It would be equally true to say that he eats with his legs. More accurately, he has neither stomach nor legs, but only one cell of protoplasm with which to walk and eat and do all that he does. He has neither back-bone nor lungs nor jaws nor blood nor brains, nor anything else of the elaborate special equipment that goes to make up the complicated machinery of a man.

The story of evolution of life upon the earth tells how from these cells came man—of how a creature composed of one small speck of living matter, capable of doing only a few things clumsily, was the ancestor of creatures possessing millions of cells arranged in special organs, legs, stomachs, brains, what-not, all delicately adjusted to special tasks.

When one compares an amœba with a man, their relationship seems inconceivable. But if one begins at the beginning of fossil life and traces the slow development of parts and organs, one by one, from their simplest beginnings through this era of life and that, the idea becomes not only possible but inescapable. Development was far slower in the early stages than later. One can consider that the rate of progress has been constantly accelerating. It took half the life of the earth for animal life to develop hard bony parts, without which no highly efficient life is possible. A world peopled only by worms or jelly-fish, however enormous or wise, could never accomplish much. There were needed more millions of years before this bone-making ability formed that most precious of possessions, a back-bone. This great event occurred in the sea, where all the early development of animals took place, and it is from these ancient fishes that all vertebrate life is descended—that man got his back-bone, if you will. Legs and lungs came long after, as the first animals began to climb out on the dry land. Man has legs and toes because some fifty or more million years ago queer venturesome amphibians learned to pull themselves shamblingly along a beach. And so on clear down to that fateful hour when, only half a million years ago—or perhaps a million—some hairy creatures of the forest (neither man nor monkey, but their remote common ancestor), for some unknown reason, began to walk on their hind legs, thereby converting fore paws into hands, and making mankind possible.

This general theory of evolution is part of every-day thought now. A man speaks of the evolution of the automobile when he means its gradual development from feeble, clumsy carriages to swift and mighty cars. Generations are growing up in a world that takes evolution for granted as the basis of all thinking. It has become more than mere hypothesis; it has been so thoroughly tested and confirmed that it has attained, in part at least (as it relates to living things), the status of scientific law, like the law of gravitation. Yet we should none the less understand the basis on which it rests and exactly what its terms are. For not even the oldest scientific law is exempt from modification and development; the law of gravitation itself is at present being re-examined in the light of the Einstein hypothesis of relativity, an immensely complicated theory of higher mathematics. Similarly, evolution is to be viewed as a general law of development that is certain to undergo great development itself. Such is the nature of all science. Its wisdom is not a body of permanent and unalterable laws built into the universe, so to speak. It is but a very human attempt to classify facts as man observes them, and to state his view of their relationship to one another in laws that are necessarily tentative and incomplete, and that inevitably grow, alter, and are transformed from decade to decade. It would probably be better if these working hypotheses were not called "laws" at all. But the usage is confirmed, and there need be no confusion if the character of these "laws" of science is understood.

The idea of evolution has long been in the world. It appeared first in Greece, flung off as a beautiful speculation. The great philosophers of many centuries gave it place in their systems. But it was none of these philosophers who established it on a secure basis. That was done by Charles Darwin, a naturalist, not a philosopher, a scientist, whose motto was "Dogged does it!" He was a born observer, as

a boy fond of roving the fields and collecting beetles. He shipped on a voyage of exploration at the age of twenty-two as a naturalist, and for five years shared the adventures of the famous *Beagle,* which he has described in his delightful book "The Voyage of the Beagle." He was much struck by the way in which species varies from place to place and from time to time, among fossils and among living animals. The birds and tortoises on the Galapagos Islands especially puzzled him by their resemblances and their differences.

It was a study of the breeding of domestic animals that finally suggested an explanation of evolution in the theory of "natural selection." The race-horse is bred for speed and the cow for milk, by selecting the best specimens of each generation and breeding from them alone—an "artificial selection," in short. Darwin conceived that nature selected and bred in the same fashion. Only the principle of selection was not any ideal of speed or beauty or milk production, but simply fitness to environment. The desert bred the camel, the mountain the goat, the plains the buffalo, the deep sea the whale, the soil the mole, the skies the eagle.

It is a simple enough idea. But it was a tremendous discovery—one of the great ideas of all time. It came to Darwin suddenly in 1838. He at once saw its possibilities. But what did he do? Nothing could better illustrate the turn of his mind. Here with the solution, the long-sought explanation of evolution, within his grasp, he sat down and for twenty years worked in silence to verify it. When he finally published his theory in 1858, it was supported by this wealth of evidence based upon these years of painstaking study. As a matter of fact, another British naturalist, A. R. Wallace, hit upon the same idea in this same year. But Darwin deserved and has received the credit for the great discovery, for it was his lifetime of research that put the idea upon secure ground.

Evolution rests upon a broad basis of evidence, upon the cumulative effect of countless small facts all pointing in one direction. One of the chief sources of proof is paleontology, the science of fossils (literally, the science of ancient beings). The most extraordinary confirmation is found in long series of mollusks and fish showing exactly the slow development from one million of years to another that the theory would demand. The lowest animals and plants are found in the oldest strata; each successive stratum shows a slow ascent. Fossil life is so incomplete that there can obviously be nothing like an unbroken chain of descent. By good luck there are certain links of the chain amazingly complete. But there are also huge gaps probably lost for all time. Far more has been lost to us than has come down. It is, therefore, not at all extraordinary that the remoter ancestry of man, for example, should be wholly missing. The earliest human skeletons found are those of a more primitive man than man of to-day. Beyond them, of those distant ancestors from whom alike man and the great apes are probably descended, little has as yet been found.

It is perhaps on its negative side that this fossil evidence is most impressive. The skeleton of one tiger found in the strata of the age of fishes would have overturned the entire theory of evolution, be it noted. For over half a century thousands upon thousands of fossils have been critically examined from this point of view. Not one has been found to violate the general theory of slowly developing life. There were no tigers until the higher mammals appeared; there were no reptiles until life in the sea had developed for millions of years; there are no "mistakes" or "exceptions" in this silent record of the dead.

The branches of the tree of life can also be traced from fossils to living forms. Take such a peculiar fact, for example, as that the highest mammals in Australia (outside those introduced by man) are all of the kangaroo type called

marsupials. That is to say, their young, instead of being born fully formed, are born imperfect, and are carried by the mother in a pouch of flesh. The fossil mammals of Australia are all of the same low type, contrasting strongly with the fossils of other continents. Take the sloths, ant-eaters, and armadillos of South America, queer animals found on no other continent. Their unmistakable ancestors, the extinct Megatheriums and Glyptodons, are found only in the same region. The modern horse has been traced back through fossils several million years to a remote ancestor who ran about Europe on four toes. It is assumed there was a yet older ancestor with five toes, but no fossil of a horse with five toes has yet been found. He gradually developed an inside toe into a hoof (in adaptation to the needs of life on rough, hard ground as opposed to an earlier existence in marshy land) and lost the other toes. You can see the remnants of these lost toes in the thin, splint-like bones lying along the legs of any horse to-day. According to the time schedule of these fossils, it took the horse millions of years to lose each toe.

This example brings up the second great source of evidence. If the theory of evolution is correct, there should be many remnants of the past in the structure of animals to-day. There are. The anatomists have counted several hundred of them in the body of man—vestigial structures, they are called; which is to say that they are vestiges or traces of animal descent. Take the muscles by which some humans can move slightly their ears. Many animals—the horse, for instance—have these muscles well developed. They wiggle their ears to rid themselves of flies, and they set them in a certain direction the better to listen.

In men they are rudimentary, barely present and serving no useful purpose. We speak, figuratively, of "pricking up our ears" when we listen acutely. But nobody can do so. A few thousands of years ago, man the hunter, living

wild in the forests, could doubtless "prick up his ears" literally, like any horse or dog. There is often another vestige in the ear itself. Run a finger around the extreme edge of the ear at the top, where it turns inward upon itself. You may find a tiny projecting point that is clearly present in many ears. The ears of the lower animals are pointed, and this small projection is left over from these pointed-ear ancestors. The vermiform appendix is another illustration, a once useful structure having here become positively dangerous. Man has got completely rid of his tail so far as external appearances go, but the anatomist finds bones that are unmistakable remnants of it at the end of every spinal column.

There are countless examples in animals. Snakes generally have no sign of a leg; but the python has vestiges of hind legs; and how did he get them except upon the theory that he is descended from the ancient reptiles with legs and has lost them through non-use? The whale has fore legs which he uses as paddles; as far as appears externally he has no hind legs at all. But their rudiments are there all the same, hidden under the skin. If the whale's ancestors crawled out on dry land, developed four legs, and then took to the sea again, where they needed only flappers and a tail, the presence of these mysterious remnants is no mystery at all. But how else explain them?

The comparison of the structure of existing animals yields far more elaborate conclusions. Take these same flappers of the whale which he uses as paddles. They are built on exactly the same plan as the arm of a man or the fore leg of a horse or the wing of a robin—the same joints, the same bones. It is difficult to explain this extraordinary resemblance except upon the evolutionary basis that all are descended from a common ancestor whose fore leg was, in the course of millions of years, adapted to swimming, trotting, flying, writing.

Such adaptation seems a little unreal when applied to organs thus completely specialized—a hand holding a pen and a wing soaring aloft. Fortunately, similar processes are at work to-day. Charles Darwin took much of his proof from the cases of domesticated animals, the breeding of which he studied for years. For one clear illustration he showed that the wings of the wild duck are larger than are the wings of the domesticated duck, larger in proportion to legs, that is. Surely, this is easy enough to understand. Yet continue the same process, keeping the domesticated duck closely confined, unable to fly, for a million years, and is it any more difficult to conceive that his wings might cease to be wings altogether, might even disappear within his skin like our tails or the hind legs of the whale? (There is actually a bird in New Zealand, the apteryx, which has wholly lost its wings.)

This modern parallel covers only part of the fact, however. The wings of a duck disappear from non-use—atrophy, in technical phraseology, literally, lack of nourishment. From what did the first wing develop, or the first leg, or the first back-bone, or the first anything? This goes to the heart of the evolutionary problem and touches the chief weakness in the Darwinian explanation.

It may seem at first glance as if this question might have a simple answer. Take the giraffe, for an obvious example. What could be easier than to suppose that he developed his long neck by stretching up to get the foliage of tall trees? Start at a time when the ancestors of the giraffe had necks of ordinary length. Then through some gradual change in the climate it became necessary for them to seek their food higher and higher. The first pair of giraffes thus put to it stretched their necks a little; their children inherited the extra length of neck and stretched their necks a little more; and thus, bit by bit, the present extraordinary neck was achieved. That is probably the first explanation of

evolution which suggests itself. It was the theory put forth by Lamarck, the French naturalist who preceded Darwin. It is simple and clear.

Unfortunately, there is a serious objection to it, an objection which may seem strange at first sight. That is that there is no satisfactory evidence whatever that the second generation of giraffes would inherit the long necks their parents formed by reaching aloft. Man is so familiar with the constant workings of inheritance, with the fact that children resemble their parents (whether the parents are humans or horses or giraffes), that he seldom makes this distinction which to the biologist is all-important. Children do resemble their parents; this is one of the solidest facts of life. But do they resemble their parents in respect to those qualities which the parents have acquired? Is the son of an acrobat born with the muscles of his father? Does a trained seal in a circus give birth to little seals which possess the tricks or the cleverness of their mother? Suppose you cut off the tails of a pair of mice with a carving-knife, as in the rhyme, will their descendants tend to be tailless?

When this extreme case is reached, it is easy to guess that the answer will be no. But what of the other cases? There is endless evidence upon the question in the books on evolution. It is called the question of the inheritance of acquired characteristics. No final answer has been reached. It may be that there is in certain cases such an inheritance. The difficulty of proving a negative is great. But the evidence runs strongly against such inheritance. It may be said with confidence that there is no sufficient evidence as yet to prove this essential proposition of the Lamarckian theory.

How, then, did the giraffe's neck become longer and longer? Here was the great service of Darwin. He conceived a theory by which, without inheritance of acquired length of neck, the gradual elongation of the neck would

take place. Darwin called his theory, as already stated, "natural selection"; but it is perhaps better known under the name which a later English evolutionist, Herbert Spencer, gave it, "the survival of the fittest." It is a theory that would operate far more slowly than would that of Lamarck. But it would operate just as surely. It regards the huge number of offspring which animals bring into the world, and notes the fashion in which they vary. It observes that there is on the part of these varying offspring a hard struggle for existence—not an actual fight between children, but a competition for food, shelter, etc. All cannot survive; especially among the lower animals far more perish than live; which will these fortunate survivors be?

To return to the giraffes. Of the first pair confronted by the ascending foliage, there would be born young giraffes varying considerably in length of neck among other qualities. Such variations are universal, as every human family shows. Now some of these giraffes would be better fitted to the changing condition of their region than others—to their environment, in more technical phraseology. Let us assume that here it would be the baby giraffes with the longest necks that would stand the best chance of living. (The sum of a great many qualities would decide, really, for the question of which animal is the fittest depends on the sum of his qualities; but the case can be thus simplified by way of illustration.) The giraffe with the shorter necks would tend to die off. Now see what the effect of this would be upon the next generation. The long-necked giraffes, surviving, would have offspring, and these young giraffes would inherit the long necks of their parents, since these long necks were born in them, not acquired. The short-necked giraffes would die and leave no children. Thus, simply as a result of accidental variation and the struggle for existence, the neck of the giraffe would constantly tend to become longer. The environment moulds, according to Lamarck; it selects, according to Darwin.

The foundation laid down by Darwin has not been shaken by criticism. Natural selection is still generally accepted as a major factor in evolution. But long study has revealed the fact that the problem is not as simple as the first advocates of the new theory believed. It never is, in science! Natural selection can be accepted as the great eliminator; it has sifted out the unfit and constantly tended to preserve the fit. It is far from established as a sufficient explanation of all evolution. In fact, there is a growing tendency to seek out other principles to supplement it. Darwin, himself, saw the need of other factors; he stood ready to apply the Lamarckian theory in certain cases.

Of the many criticisms of the Darwinian theory, one of the most serious is the one already suggested as to how the first leg, the first eye, or the first anything starts. The ordinary differences between offspring are inconsiderable. How can it be conceived that the first chance beginning of a new limb, for example, would be of any value whatever in aiding its possessor to survive? Might it not rather be a detriment? And unless a variation is useful, then and there of positive every-day value, the Darwin theory does not explain its survival.

In aid of the Darwinian point of view, the most important idea that has been evolved is the work of a Dutch botanist, Hugo de Vries. Thus far illustrations of evolution have been drawn from the animal world. But the principles are not less true of plants and flowers, and the work of botanists and biologists have been of prime importance to evolutionary theory. De Vries conducted a long series of experiments with one plant, the evening primrose, in an effort to determine just how great are the accidental variations upon which the whole theory of natural selection rests. Darwin conceived of these as slight, and of evolution as a very slow process, proceeding by almost invisible changes. Now De Vries found that his evening primrose showed

startling changes in each generation of seeds. Plants exactly like the original stock were much the more numerous. But at least one in perhaps a hundred would be very different; and (here is the second important point) these extreme variations bred true—that is to say, from the seeds of these strange primroses grew the same strange flowers.

Such variations have long been a matter of common knowledge among plant-growers and animal-breeders. They are called "sports." What De Vries did was to prove their occurrence as a scientific fact and to prove that they breed true. He named these strange seedlings "mutations." It is obvious how this discovery applies to evolution. Instead of slight variations to select from, there is the possibility in each generation of a few exceptional specimens possessing extraordinary qualities. When these strangers happen to fit their environment, there is a possibility of a long and sudden jump in evolution. That is, indeed, the way in which De Vries conceives of evolution, as a succession, not of infinitely minute changes but of considerable leaps. The origin of new organs, of legs or what-not, is more easily conceived by the aid of such "mutations."

A word of caution is necessary as to this theory. It rests chiefly upon the experiments mentioned with the evening primrose. Before it can be accepted, it must be confirmed by much other research. Until this confirmation comes, it is to be viewed as only one of many hypotheses which may some day be firmly established in the evolutionary theory. It is worth citing for its possible importance and for the excellent illustration it gives of how slowly and by what lifetimes of precise and delicate observation scientific progress is gained.

As a matter of justice, there must be mentioned with the name of De Vries that of Mendel, an Austrian monk who experimented along similar lines and with the same patient care a half-century earlier. Mendel discovered certain laws

of heredity in 1865 which bear a distant relation to the conclusions of De Vries reached in 1900. (The work of Mendel had been published and forgotten all those years.) He proved that certain characteristics of peas (ordinary edible peas) tend to disappear for generations, to reappear suddenly as if from nowhere; and he reduced his conclusions to an exact mathematical formula. In recent years his laws have been applied to many organisms, to wheat and barley, to mice and chickens and cattle, among others. They are in constant use to-day by seed-growers and animal-breeders; for they make it possible to secure stock which will breed true, that is to say, never produce sports. It is of course the reverse of this process which is of interest to evolutionists. For the Mendelian laws show that a certain type of sport is a necessary and frequent event in nature where there is a mixed ancestry. (The mutations which De Vries discovered may probably occur in pure stock.)

One school of evolutionists, the later Darwinians, seek to explain evolution by the one principle of natural selection, or, at any rate, regard that principle as the controlling factor. In contrast with them are a number of scientists who have sought proof of the existence of some inborn tendency in living matter to develop. They accept natural selection as the sieve through which nature selects those forms which are to survive; for the source of variation, of change, of development, they look elsewhere. They do not agree literally with Lamarck's statement that the giraffe got his long neck by wanting a long neck and stretching the neck he had for many generations. In this simplest form there is not much belief in the Lamarck theory to-day. For, as we have seen, this conception presupposes the inheritance of acquired characteristics for which there is no good evidence. But these critics of natural selection, under a wide variety of hypothesis, all tend toward the Lamarckian view of progress as something flowering from the structure of

the organism itself, not simply the result of chance variation. The neck of the giraffe grew long, they would say, because there was in the cells of the animal something which made them respond to this need. In its extreme form this view reaches the point of view of those vitalists who would explain the appearance of life upon the earth by the advent of a new and as yet undetermined force. The two problems are closely related; are, in fact, almost one problem. If man ever understands exactly what life is, he will probably comprehend evolution fully.

As the problem stands at present, there is, thanks to Darwin, a clear explanation of the negative side of evolution, the fashion in which nature eliminates the unfit and selects those who are to survive. Man cannot feel sure that he knows how nature originates those various forms between which she thus chooses. Are they the result of chance? Or are they the result of an inborn tendency? That is where the problem of evolution stands to-day. A brilliant progress has been won, undoubtedly the longest leap the human mind has ever taken. But a profound mystery has been revealed which is still wholly unsolved.

2. THE TREE OF LIFE

Before setting down the story of evolution in order of time, one other fact should be made clear. That is the first branching of the tree of life, at an early stage, into plants and animals. The old division of the world into three kingdoms—animal, vegetable, mineral—does not accurately express this result. For, whereas the mineral kingdom can be taken as describing a true division, that of the non-living, animal and vegetable, are really halves of one kingdom, the living. But the old division is none the less right in making a sharp distinction between plant and animal. Just what is that distinction and when did it first appear upon the earth? Which appeared first? It is natural to

guess that plants came first, and that animals developed from them. Is this view borne out by the facts?

There can be no certain answer to the question of priority. The division took place in the farthest mists of Archean time. There is no clear proof that the plant appeared before the animal, and many scientists are working upon the hypothesis that they developed side by side out of one substance, the most primitive living matter, their common ancestor. One thinks of animals as more complicated than plants, as superior to them. But the most primitive animals closely resemble the most primitive plants. In fact, there are many small organisms, the bacteria, for example, which it is difficult to classify, which have not made up their minds whether to be plants or animals. Whether their existence supports the view that plants and animals started life together, or the view that animals developed from plants, it makes the fact clear that their separation, their becoming different from one another, constituted the first great step in the evolution of life.

Man's very existence depends upon that difference. The plants of the earth could live on if all the animals were destroyed, would, indeed, grow more lavishly with no animals to devour them. But if all the plants of the earth should disappear, every animal would swiftly perish. Such is the plan by which life on the earth has been developed. It is perhaps the most wonderful of all the many delicate adjustments that hold the universe together and have made possible such complex creatures as man.

What the plants do for animals is to take the rays of the sun and transform their energy into animal foodstuffs. One may conceive of the whole vegetable life of this earth as a vast factory for bottling the energy of the sun's light and heat to be served in mangers and on dinner-tables. The fashion in which this is done is delicate and ingenious. The leaves of trees and plants resemble photographic films in

that they are most sensitive to light. Just as light makes a picture by setting up chemical changes on an exposed film, so light works chemical changes in the leaves. It enables them to take carbon from the air and build of it complicated substances like sugar, starch, and fat, the chief foodstuffs. How this is done is not yet fully understood; but the substance in the plant which does the work has been identified and closely studied. It is called chlorophyll, which is Greek for "leaf-green," and it is, in fact, nothing else than the green coloring matter of leaves. It is thus for a very practical reason that a willow-tree turns green in the spring. The color is not mere decoration. Wherever it is present, there is going on this extraordinary chemical process without which plants would die and, in turn, animals starve to death.

The resemblances between plants and animals are many. A boy and an apple-tree are not as different as appears on the surface. Both are built of similar cells of living matter. Both are born, grow, and will some day die. Both breathe. Both eat and digest. But it is precisely in this matter of eating that the great difference exists. The chlorophyll of the apple-leaves acts as the tree's stomach, if you will; with the power of sunlight it separates carbon from the air and therewith feeds the body of the tree. The boy cannot eat carbon from the air. Yet his body is built of the same carbon products as the tree, and must feed upon them or die. So he eats an apple or a piece of bread; and his stomach is built to digest these prepared foods. He eats the carbon of the air and the energy of the sun second-hand, already half digested, as it were, by the tree and the plant.

Here is the fundamental difference between plant and animal, running back clear to the simplest forms. There are a few queer animals which possess the green-making faculty. There are a number of vegetables, the fungi,

which do not possess it, living as parasites on other vegetables. The general truth of the distinction is clear. And closely connected with it is the other great distinction clearly illustrated by the boy and the apple-tree. The boy can climb the apple-tree; the tree cannot run away. Animals, even of the simplest form, move; the amœba, as has been noted, pulls himself along by his stomach. Plants make certain slow gestures, turning toward the sun, for example; their general nature is to stay put. They are the placid, stay-at-home part of life. Theirs is the calm and silent labor of sitting still and storing energy for the restless, stirring beings of the earth, the animals. It is possible to conceive of a quite different development of life, of vegetables that could walk, of animals with green leaves. Evolution early took the double road. The result has plainly been to relieve animals of part of the burden of life, to supply them with energy, ready for use, and thus to begin life at a freer and higher level than that of the plants. That is why history is almost wholly a history of animals and only passingly a history of vegetables. That is why vegetable life reached its full development long ages ago; while the swimming, leaping, roaring animals have gone on from one adventure to another, are still going on in the story of their most complicated achievement, man.

In the following story of evolution the main divisions of geology will be followed. Of course, these are wholly artificial boundaries. The stream of life has risen and fallen, profoundly affected by the changing face of the earth; but it has never halted, and each age flows imperceptibly into the succeeding.

Archean Life. There is some direct evidence of life in the rocks of this era. Its extent and character are wholly matters of inference. There must have been life through a large part of these 250 or more million years, and many forms of it must have been developed, because when the

fossil record begins in the next era the scientist finds himself at once in the presence of a great variety of creatures. Their long ancestry is lost because they lacked bones. Not much progress has been made in reconstructing that ancestry by reasoning backward. Theories as to these early forms of life are suggestions rather than facts. Not much more can be said than that this is the way life may have developed.

In the long millions of years which form the Archean Age, had a visitor from another planet flown into sight of the earth he would have hurried past, dismissing it as a hopelessly bleak and desolate shore. Where upon the earth life was beginning remains hardly more than a rough scientific guess, a first hypothesis based upon probabilities, and serving only as a temporary chart for investigation and research. One must be careful to attach to this hypothesis only the importance which men of science give it. Purely as a working hypothesis, then, it may be said that life probably first appeared along the shores of the waters of the earth. There all the necessary chemical elements were present. There where the heat of the sun lay warm upon the shallows it is easiest to conceive that this most extraordinary event in the evolution of the earth took place. A majority of scientists are working upon the theory that life originated in the salt seas; others look to the fresh-water pools of the earth. The whole subject is still as vague and dark as the form of that first earth, heavy with clouds, lashed by tempest, and lit chiefly by the fiery tongues of volcanoes.

This first life, it is supposed, was far simpler than the simplest plant or animal now known. After all, as some one has said, even the amœba is no fool. He knows how to go after desirable objects, food, and to go away from danger. The microscopic one-cell animals and plants, the bacteria, and so on, are thought of as the descendants of a

mass of living matter, perhaps a sort of jelly feeding and growing, but having neither cells nor anything resembling an individual existence.

The one-cell animals (like the amœba) and the one-cell plants (like the simplest algæ or seaweeds) would be the first living creatures under this hypothesis. Along each line of descent, the one-cell creatures developed into simple groups of cells, and these, in turn, into organisms containing many more cells, arranged upon a plan, exceedingly simple, which enabled certain cells to do one thing and other cells to do another—as in the coral, for instance, a belly with a mouth and nothing else.

When fossils appear in the next era, the Paleozoic, there is this striking fact: all of the subkingdoms of animal life, including 500 and more species, are present save only the vertebrates. Therefore, it is certain that life was abundant and of many forms before the end of the long Archean era. There is one important restriction. So far as the evidence shows, it was limited to the seas, the lakes, and the rivers. There is no suggestion of animals on the land or of trees or turf. It is likely that throughout this vast period, one-half of the earth's life, the soil and rocks of the earth were as barren as a desert. For 250 million and more years life surged and floated in the waters, and the dry land knew no least living thing.

In this slow-moving period of incubation the bacteria, the simple scum-like seaweeds, the one-celled animals like the amœba, were surely present. Later the seas must also have held many such animals as the sponges, the sea-anemones, and the jelly-fish; and toward the end it is certain (from burrows preserved in the rocks) that the achievement of the worm was reached. This was an epoch-making advance, because the worm, or some animal like it, was the first creature with a brain. The earlier animals, like the jelly-fish, have what is called radial symmetry. That is

to say, they radiate from a centre like an orange; they have no left or right, no head or tail, as befits their sluggish drifting manner of existence. To lead a more strenuous life, to pursue and to escape, a right and left side, a head and tail are as essential to an animal as to a boat. The worm was such an animal. It had no back-bone—it was millions of years yet before that achievement was won by the fishes. But it had a brain, for with the development of an end that tended to be in front, came the simplest, most primitive head and brain, a nerve-centre that to some extent received impressions and transmitted orders to the several parts of the body.

Paleozoic Life. Five great developments took place in this era. The plants spread over the face of the earth, largely in the form of giant ferns. The fish developed its back-bone. Toward the end, certain adventurous fishlike animals climbed out on the dry land and developed into frogs and other amphibians. At about the same time certain crablike animals grew wings and were insects. Finally appeared the first reptiles that were to grow to such enormous size and dominate the entire Mesozoic era that was to follow. To a visitor from another planet the conspicuous features at the height of this long era—almost a third of the life of the earth, or not less than 150 million years—were plain. It was, above all else, the age of fishes and ferns.

Throughout the first part of the era the oceans were ruled by a strange animal that rose to power, declined, and disappeared, all within this era—the trilobite. The name means that he had three lobes or parts. Most of these animals were small, an inch or two long; but there were giants as long as two feet. The horseshoe crab of to-day (which is not really a crab at all) suggests their general look; and one can form a rough idea of the earth at this time by picturing it as ruled for millions of years by horseshoe crabs. But from the point of view of the amœba an enormous ad-

vance had been made. The trilobite was a miracle of highly specialized organs by comparison. His eye was wonderful by any comparison, being compound, like the eyes of insects. The eye of the trilobite sometimes possessed as many as 15,000 lenses. From an animal that walked with his stomach to an animal who could boast of 30,000 eyes was no short march. These vast ages when all life was under-sea were by no means waste or idle.

There were starfish and sea-urchins, there were oysters and clams, there were snails, conches, and periwinkles in the early Paleozoic seas—not exactly the modern forms, but plainly their ancestors. Corals developed apace. The fossils of 950 distinct species of trilobites have been found existing at the time of their greatest development; and fully 7,000 fossil species of lamp-shells.

About the middle of the era came its two most important events. Together they made this age perhaps the most significant in the story of evolution. The back-bone appeared in the fish, ancestor of the whole line of land vertebrates destined to rule the world; and, as a forerunner of the invasion of the land from the sea soon to begin, the earth was carpeted with green, food without which animals could not have lived ashore. These were completed facts by the time full evidence of them is preserved in the rocks, and it is certain that each had a long prior history. The history of the fish's back-bone can be traced back a certain distance, but its exact ancestry is a matter of speculation. In any event, it is probable that the first beginnings of a back-bone came early in Paleozoic time. The other great event, the appearance of fern-like forests upon lands, must equally have grown from small beginnings. The continents may well have been covered with verdure of some kind from the beginning of the era. But just as the first back-bones were not sufficiently heavy to be preserved as fossils, so the first vegetation vanished beneath the rocks, leaving hardly a trace.

The sharks were among the first of the fishes. They were small and mild, not at all like their modern descendants. The armored fishes had preceded them, some small and sluggish, absurd creatures, others large and terrible, the masters of the sea in this age of fishes. All these heavy fishes, the battleships of marine life, proved to be a start in a wrong direction. They all died out within a few million years, beaten in the struggle for existence by the light, swift-moving fishes. There were many other strange wanderers in the sea at this time. The most interesting is the lung-fish, for it gives a vivid illustration of how evolution proceeds.

There are three species like the ancient lung-fish that have lingered on to present times. One lives in the stagnant river-waters of Australia, where drought is a constant peril and a fish is hard put to it to breathe through his gills. There is another lung-fish in the Nile, still another in the Amazon. All these fish can breathe in two ways: by gills, like ordinary fishes, and also by a lung. When they want, they can rise to the surface and breathe the air exactly like a dog or a man. Now, this lung exists in most fishes, but it is altered to serve a quite different purpose. It is called a swim-bladder, and by squeezing air out of it or sending air in, a fish can maintain any level in the water he desires without effort—just as a submarine pumps out or lets in water to rise or sink.

Scientists have not yet found the fossil ancestors of these fishes. But evolutionary theory conceives that this lung developed in fresh-water fishes in a time when the lands were rising and waters shallow and stagnant; that in the lung-fishes it survived somewhat in its original form; that in other fishes it altered into a swim-bladder; and that in other animals of the sea it developed into true lungs that enabled the first amphibians to walk out upon the shore and become the ancestors of the whole vast land army of ver-

tebrates. The lung-fishes are not the ancestors of man, but they point to a common ancestor as yet undiscovered in the rocks.

While all this was happening afloat, while lungs were building beneath the sea whereby the great invasion of the land was soon to follow, the whole face of the earth was changed. Pushing up along the marshes, then spreading to the highlands, appeared the first forests. Rushes, ferns, and evergreens are preserved from this middle period of Paleozoic time, with ferns conspicuous. The same forests stretched throughout eastern North America and northwestern Europe; for in this period the continents were united via Great Britain and Greenland. Already there were many species of each plant and already the two great divisions of plant life had been evolved—the plants that reproduce by spores (like ferns and mushrooms) and the plants that reproduce by seeds (like trees and flowers). From the spore of a fern there grows not a fern but a short-lived plant that develops the cells of a true fern and then dies. From a seed there grows at once the plant from which it came. The spore system is a clumsy, slow method, and the seed marked a great advance. Only one step remained to complete plant life and that was the development of the flower. This probably did not come till the next era, the Mesozoic. But the seed was the great achievement, the flower came only as a refinement; and it may be said that the vegetable world thus reached its limit of evolution, in essentials, at this early date, not less than 125 million years ago, while animals were still restricted to the sea, and such great improvements as marked the mammals were still far distant. Thereafter the development of plants was chiefly in the multiplication of varieties.

The spread of the great ferns and evergreens was swift in the closing periods of Paleozoic time, and they formed the setting, dense, tropical, and eerie, for the three great

events that came together in the last third of the era. This was the age of coal; it is these luxuriant forests of fernlike trees that, fallen to the ground and buried beneath later rocks for many ages, man burns in his stoves to-day. It might be called also the Age of Cockroaches, for in these forests appeared the first insects, strange and gigantic. There were dragon-flies two feet from tip to tip of their wings; and there were above all else cockroaches, 500 species of them, some of them four inches in length. These ancestral cockroaches and other primitive insects were amphibious, and it is thought that they were descended from the trilobites once lords of creation, now disappearing from the face of the earth. But this is only a surmise. The links in the chain are missing and it is impossible to reconstruct with any confidence the story of how the insects developed their wings. It is certain only that they were closely related to the trilobites and to all the crustaceans, and that they appeared thus early upon the scene, sharing with the amphibians the honor of being the first land-animals. They are thus an entirely different branch of development from the other animals that share their habitat, the birds. Wings were developed for the insects in the last half of Paleozoic time; not until half-way through Mesozoic time did the first bird appear, an offshoot, like the mammal, from the reptiles. The bird is no more closely related to the insect than is man.

There were other strange animals in these forests of fern and more is known of their growth. The story is enacted when a tadpole turns into a frog. It begins as a little water-animal, breathing by gills and swishing about by means of a long tail. Then it grows longer and fatter, and faint beginnings of hind legs can be seen. The legs grow and detach from its sides, fore paws appear, the tail shrinks, the tadpole vanishes, and there hops out on dry land, with long

legs folded under it, and breathing the air as if it had never known any other life, a frog. That is a rough summary of what happened in the evolution of the frog. Only, of course, no one animal covered the entire development or any considerable part of it. Thousands of years were needed for each small development. Millions of tadpoles never got beyond the most primitive legs. The modern frog was not achieved until the beginning of Cainozoic time, some 25 million years ago.

The young of every animal go through stages more or less similar to those of the frog. The frog is born from a primitive type of egg and is hatched at an early stage of its development, so it changes rapidly before one's eyes. This particular type of swiftly changing growth is known as metamorphosis. In the case of the mammals, when the young are carried in the mother until fully developed, these early stages are hidden. But they take place with striking uniformity, from the lowest animals to the highest, up to and including man, and the fact forms one of the most interesting confirmations of the theory of evolution.

There were many other amphibia, leading the double life by land and water, in these great forests. Most important were the armored amphibia, squat, enormous-headed creatures, as large as crocodiles, and perhaps rejoicing in a most extraordinary organ, a third eye, situated conveniently on top of the head. (The evidence is not conclusive and is doubted by many scientists.) The reptiles developed out of these same amphibia; and the mammals developed from the reptiles; here is the direct ancestry of man. Now that man has learned to fly, it would be convenient if he had a third eye. But if it ever existed it was not a success and it disappeared with the armored amphibia. A hole in the shell still remains in some living reptiles; and man, along with other mammals, shows in his brain rudimentary traces of this lost apparatus, eye or whatever it may have been, lost

100 million years ago. So indelibly is the record of the past written in every living thing.

In the last millions of Paleozoic years came the first reptiles. There was no sharp break here due to lost links. The land-dwelling reptile grew slowly from the amphibian by clear stages. It was an amphibian who had forsaken the water and had developed accordingly. It was still cold-blooded like the amphibian. It reproduced by laying an egg. But it was a far more highly developed egg of far-reaching significance in later evolution. One is apt to think of these creeping, crawling animals as lowly. In their day they represented a steady sure advance along the line of true progress. In the next era they went astray, crawling down a blind alley, developing into vast, clumsy forms that could not survive the harsh test of changing climate. In these early forms they were clearly the direct ancestors of birds and mammals.

Mesozoic Era. These 50 million years, the Middle Age of the earth's history, form the Age of Reptiles. It saw the rise, the majestic triumph by land and sea and sky, the decline of these strangest of all animals. Theirs was the conspicuous story of the era; a visitor from another planet would have been amazed and appalled by the greatest dinosaurs—some were thirty feet from head to tail—and it would have been impossible for him to conceive that theirs was to be but a temporary triumph. He might not have noticed at all certain small descendants of earlier reptiles who had developed along a new line and lived inconspicuously among the giants. Yet these were the first mammals, and their descendants were to conquer the earth long after the hugest dinosaurs lay buried in the earth. These first mammals appeared early in Mesozoic time; the first true birds appeared a little later; and about the middle—according to most authorities—came the first flowers.

Thus this age, lorded over by the vast bulk of the rep-

tiles, was really important for far other events. By its end all the great divisions of living things were launched upon the earth. In it the mammal, the bird, and the flower, the three highest forms of life, all inconspicuously came into being. The analogy with human experience is strong. The race is not always to the swift in evolution any more than it is in the practical business of living, nor is the largest necessarily the most important.

What caused the giant reptiles to perish from the face of the earth? The precise geological changes that ended them are not clear. One of the interesting efforts of scientists to-day is to discover cause and effect between the movements in the earth's surface and the great developopments in evolution. Some such effects have been traced; the disappearance of the reptiles remains a puzzle. But it is at least easy to see how vulnerable many of them must have been to slight changes in climate. They were huge in size, small of brain, weak in teeth. To thrive many needed a peculiar set of favoring conditions, a huge quantity of grass to eat, flat lands, and shallow waters. These are a good example of what the biologists call overspecialization; fed by easy, favoring conditions over long ages, they grew huger and huger, more and more sluggish, developing no new ability, no new weapon. From one cause or another their ultimate destruction was inevitable.

Not all the reptiles were large and sluggish. There were many small and active. There were numerous carnivorous reptiles, some of great size, in addition to the grass-eaters. Some had fore legs developed into wings and took the air like fabulous bats, twenty-five feet from wing-tip to wing-tip, veritable dragons. These flying reptiles disappeared within the Mesozoic era, leaving no descendants. The modern bat is a mammal just as much as is a flying squirrel. The true bird developed from another line of reptiles altogether. Other reptiles returned to the ocean from which

their ancestors had crawled, and with their land limbs modified back into swimming-paddles grew into the terrors of the sea. The famous icthyosaurus (fish-lizard) was one of these. In appearance he resembled the modern porpoise, but the resemblance was wholly superficial, for the porpoise is a mammal gone back to the sea, and this twenty-five-foot tyrant of the oceans was cold-blooded and egg-laying, a true reptile. There was an even more terrifying sea-reptile with a stout body and long snakelike neck, suggesting the mythical sea-serpent.

No wonder this age of reptiles has passed into general knowledge as the strangest era of the past. Look upon Kansas of to-day with its man-made villages and its peaceful man-tilled wheat-fields; and then picture it as it was in the late Mesozoic era when the great inland Coloradoan Sea covered Kansas and all the heart of America. A flock of pterodactyls fly across its shallow sea, like a squadron of aeroplanes. Icthyosauri leap from the water like dolphins; great snakelike heads rear among them. On the shore, low, lumbering reptiles twice as long as an elephant waddle down to drink. Nothing in mythology or fairy-tales is half as unbelievable as this record of science laid down beyond contradiction in the record of the rocks.

Meantime throughout the bulk of this era there were playing among the eighty-foot dinosaurs of the land the small mammalian reptiles from whom were to descend the line of mammals including man. Their progress was slow; in fact, for millions of years they remained practically stationary. Yet they possessed a power of adaptation, of development, an inherent ability, which was to outlast the bulk of the mighty reptiles.

So in the air and sea as well. The true bird appeared in the air, a descendant of reptiles, but developed along far more efficient lines than the flying reptiles. A skeleton has been found in Germany which is a true bird with distinctly

reptilian characteristics. It is the size of a large pigeon, partly covered with feathers, possessing the jaw of a reptile, lined with teeth (which no modern bird has). The earlier steps by which the true bird developed a wing are among the many steps in evolution as yet undiscovered. One theory is that birds and insects alike developed wings from fish fins. If so, science is still left with the problem of flying reptiles and bats upon its hands. Wings remain one of the great unsolved problems of evolution.

In this closing period of Mesozoic time came also the modern fish. Thus in all three elements, earth, sea, and sky, the future masters were prepared while yet the dynasty of reptiles was at its height.

Cainozoic Era. There were two important evolutionary events in these last 25 or more million years. The first was the rise and triumph of the mammals. The second was the rise and triumph of man, a triumph of which we are part and in which we still live. Either of these achievements may be fairly said to be more wonderful than all that went before. In each case the gap was wider, the improvements more extraordinary, the rate of advance far swifter. It took at least 250 million years to make a jelly-fish, 150 more to make a fish with a back-bone, 50 more to make the great reptiles. It needed but 25 million years more to perfect the mammal; and thereafter but 2,500,000 years to achieve man, a mammal equipped with a brain so far superior to the brain of the highest animal as to rank alone.

Mammals are so called because they nurse their young, and the name singles out a highly important characteristic. For nursing prolongs the period of infancy, and this lengthening period during which parents care for their young is a sure sign of progress among animals as among human races.

But it was by no means the only advance. Warm blood first appeared in the mammal—all other animals are cold-

blooded. (Birds have a partial regulation of temperature, which they inherited from the early reptiles.) Most important of all, the brain developed as it had never developed before, in size and in complexity.

No one would have recognized the queer early mammals as ancestors of our modern animals. Yet the line has in many cases been successfully traced down through slow changes of skeletons preserved as fossils. They were very small, these ancestral mammals, for one great difference. Great size comes late in the development of a species, when its triumph is secure and its life relatively easy, as in the case of the reptiles. One can think of the mammals as gradually increasing in size and reaching their greatest height and weight, the climax of their development, about the time primitive man first appeared upon the earth. Since then, within the last 500,000 years, the greatest mammals have slowly declined. Man has been largely responsible for this decline by hunting and killing them and by reducing their wild lands and forests. But this is simply to say that what has happened in the past of evolution when a new and superior creature appeared is happening again. The struggle for existence is continuing, and man, the fittest, is surviving in completion with the mammals of huge bulk. The race of mammals reached its triumph in the primeval forests, and is now slowly declining before the latest masters of the earth, men.

Of the small ancestral forms, one of the first to appear was the eohippus (dawn-horse). It stood a foot high at the withers, had a short neck, a long body, and short legs. Many scientists believe that it was the true ancestor of modern horses. These graceful, horselike creatures, about the size of a fox-terrier, swarmed over North America in herds at this period. Somewhat later came the first camel, another North American product. One possible early ancestor was smaller than the modern cat; later camel-like

creatures, more certainly in the line of descent, were the size of jack-rabbits and later of sheep. Camels reached a modern size and aspect in North America but died out in the Ice Age. Long before this camels had crossed to Asia, and the llamas, of closely allied origin, had crossed to South America.

The elephant has been similarly traced from an origin in Egypt where there have been found skeletons of a piglike animal the size of a pony, with a snout distinctly suggesting a trunk. This snout slowly lengthened into a trunk, various species developed in size, and before the Ice Age reached their greatest dimensions, slightly larger than the largest elephants known to-day. These ancestral elephants were confined to Africa until the great uplift which formed the Alps and Himalayas and formed land bridges across the Mediterranean. They then spread rapidly over Europe, into Asia, and thence to America. The mastodon, a near relative of the true elephant, developed early, and died out in Europe before the Ice Age, but continued to roam about North America till recent times; may, indeed, have been hunted down by the Indians, though there is no record or memory of the fact. The mastodon was the one animal with a trunk which made its way to South America. One of the strangest of the early mastodons had four fairly straight tusks with a trunk between.

The most striking and widely distributed elephant of the Ice Age was the famous woolly mammoth of Siberia. These cold-weather elephants stood about nine feet tall at the shoulders (a foot or two shorter than the largest Indian or African elephants of to-day), and had long curving tusks turned upward and inward toward one another. This shaggy monster is one of the few extinct animals which is known to have been hunted by primitive man in Europe; one could not ask for better pictures of the woolly mammoth than those which have been found in the rock caves

of France and Spain, drawn at least 25,000 years ago. The woolly mammoth ranged across northern North America at this time, having entered from Siberia by way of Alaska. Wandering as far south as Mexico City were two other larger kinds of elephants, as tall as the largest known today.

Throughout the first part of this era South America was an island unconnected with North America, and it developed some of the strangest of mammals. They are all deficient in teeth, the anteater lacking teeth altogether, the sloth and armadillo having none in the front of the jaw. Small degenerate examples have lived down to the present time. In Cainozoic time there were sloths of enormous size, the Megatherium, for example, as large in body as a rhinoceros. When the connection with North America was established toward the end of the Tertiary Age (just before the first glaciation), these sloths wandered north as far as Virginia. There the fossil claw of one was discovered by Thomas Jefferson, but at that time no one suspected the existence of giant sloths, and the claw was thought to be the claw of a great lion.

Long before the first Ice Age the list of mammals was practically complete. The ruminants—sheep, oxen, deer, bison, etc.—had all developed in Asia and Europe from a common stock; most of them did not, however, make their way into America till the Ice Age, and sheep and oxen did not reach America till brought by man in modern times. Of the carnivora, the primitive ancestors of the dog family had developed into such highly specialized and widely different forms as the wolf, the fox, and the bear; and the cat family had developed types akin to our modern lions, leopards, and tigers, and also another variety of tiger, the sabre-toothed tiger, with long, sharp, tusklike teeth. This famous beast was probably the most terrible beast of prey the earth has ever seen. It is not too much to say that it ruled

the northern hemisphere for many thousands of years. For some unknown reason the sabre-toothed tiger began to decline in Europe toward the end of the Tertiary Age, and was on its way to extinction when the first ice-floes descended from the north. It lived on in America till long after.

Two other groups of mammals should be mentioned. One comprised those land vertebrates which reverted to the water, the whale and the seal, for example. As has already been noted, the whale carries concealed under his skin the remnants of the hind legs which his reptilian ancestor went to much trouble to develop. Safely back in the sea, the whale developed in size much as did the giant reptiles on the land, even exceeding them in size. There has never been any other animal as large as the great whales of modern times.

The other group is known by the geologists as the primates. They include in it the small lemurs, the monkeys, the great apes, and man. Unfortunately, the fossil ancestry of the primates is still largely lacking. As might be expected, more remains of the ancestry of the numerous monkey clans have been found than of man. Skeletons dating from about the middle of the Tertiary Age have been dug up in Egypt and in the Siwalik hills of India which may possibly be the common ancestor of gibbon, chimpanzee, gorilla, and orang. The line of man's ancestors has been traced back only to the beginning of the Quaternary Age; that is, through the Ice Age. The primitive savage ancestors then living were already men, far removed from the highest known ape. Beyond them lies a stretch of hundreds of thousands of years before the common ancestor of man and ape is reached.

Because of a general resemblance in skeleton between ape and man, it is the hypothesis of scientists that these apes and man had, at some remote period in Cainozoic time, a

common ancestor—just as the bear and the wolf, or the antelope and the bison, had a common ancestor. But how near or far in Cainozoic time, and what the type of this common ancestor, are wholly unsolved problems. Much has been said and written of a "missing link" between monkey and man. It can be seen that this is far from an accurate way of stating the truth. To begin with, there is no possibility of a direct link with the modern apes; man is not descended from any monkey of to-day. The relationship that scientists are using as an hypothesis for research conceives of a common ancestor perhaps a million years ago, neither ape nor man, nor necessarily closely resembling either. This ancestor may have been a primitive tree animal or a primitive ground animal. The prevailing theory has been that he lived in the trees and that thereby man's ancestor first learned to walk erect, and thus released his fore paws so that they could become hands, undoubtedly the greatest step in the evolution of man. At some early point, in this view, man must have descended from the trees and taken up life upon the ground. But some scientists lean toward the view that man's ancestors were always ground apes. Nor should it be forgotten that there is a chance, improbable but possible, that the present resemblance of man to ape is only the result of a parallel development and that there was no common ancestor till one gets back to the common ancestors of all the mammals. Here, as so often, there is need to understand clearly what scientists know and what they assume as a basis for investigation and research. Not one "link" but a whole vast chain of links is missing, and it is wholly impossible as yet to say what the earlier links in the chain resembled. The record of fossils is constantly presenting such gaps, often far larger. This gap is of peculiar interest to man, and he may hope that researches now going on in the highlands of Asia may some day identify these missing forebears.

CHAPTER VI

THE COMING OF MAN

THUS man came by his body and his brain, thus by every cell and portion of his body is he linked with the past, is the child of worm and fish and reptile and primitive suckling mammal. It remains to be seen how man took this inheritance and made of it a new thing. In the first discovery of evolution and man's kinship with living things there was occasion for stressing this relationship with tree and bush and the animals of sea and field and sky. Enough years have now gone by to permit a level look at the past and judge the steps in the ascent without prejudice. One can watch the mystery of life begin; one can picture the division of life into vegetable and animal; one can note each considerable achievement of organism thereafter. What shall be said of man's achievement in comparison with these other steps? Nothing less than that it deserves unmistakably to

rank with the greatest. With man, mind becomes a thing as new and marvellous as was the first birth of living matter in dim Archean years. Life is born afresh on a new plane.

The face of the earth was changed then. The face of the earth is changed now. The mind of man has hewn away forests and harvested the plains. It has upraised cities and severed continents. It has mastered the sea with ships and by wires, and without wires brought the whole earth within earshot. Here is an evolution as strange and unfathomable in the present terms of science as that birth of living matter a hundred million years ago. In some hour of supreme wisdom, far distant, science may explain the facts of consciousness and reason as it may explain the facts of life, as it has already defined gravitation and the rule of three. But that hour is not yet and, in the meantime, one must accept and describe this marvellous age for what it appears, without pretending to understand its essence.

The Psychozoic Era some geologists have suggested calling this new era, which is to name it the Era of the Mind. Its roots are in the past. For thousands of years its growth is slow, almost as slow as the evolution of any new organ of the body, of leg or wing. Then swiftly and more swiftly comes the light. History is the stage whereon one sees the mind of man grope through dark and dubious centuries into the sudden dawn of modern times.

I. THE EVIDENCE OF EARLY MAN

Any one who has picked up an Indian arrow-head in a field knows the general method by which knowledge of ancient man has been gained. By fingering this piece of carefully chipped flint, one comes closer to that ancient hunter who there drew his bow and let fly an arrow than from reading many books. At once he stands forth a real being of whose skill and customs one can guess much. Just as

the hard parts of the first shell-fish are the first traces of animal life preserved to us from Paleozoic time, so now these hard parts of man's earliest civilization, his arrow-heads, his spear-heads, his tools, later his pottery and pictures on stones, give the first news of man. Here, too, actual skeletons have come down, precious beyond all else for what they reveal of ancient man's body. But such bones are rare, for only under most exceptional conditions have they escaped decomposition.

History begins when man first left written records of himself which have been preserved. That was only 3,000 or 4,000 years B. C., some 5,000 or 6,000 years ago. The story of the earlier period is called prehistory and the period is called prehistoric. This division is still important in so far as it points to the invention of writing, one of the capital discoveries of man. It was formerly also highly important because it marked the beginning of all knowledge of ancient man. This distinction has faded away as the past before writing, man's unwritten history, has been slowly but steadily reconstructed by archæologists. The dates of the early Egyptian dynasties carved in rock do not tell as much as the skeletons and weapons and tools buried beneath the floor of an ancient cave in southern France, all dating from a period long before writing was invented. The great difference is exactly with respect to the matter of dates. In historic times the order of events and the length of time elapsed is generally clear. In prehistoric times one enters a different realm. Thanks to the labor of archæologists, the life of these early men has become amazingly definite; one can know, in many cases, how they lived, what they ate, to the fraction of an inch their height, their length of bones, the capacity of their skulls. The year when these men lived is unknowable; it is not even a given century or a certain thousand of years. The most important events in the development of these early men cannot be fixed

within tens of thousands of years. The archæologist finds a skeleton in a certain stratum of rocks. The geologist can tell him what was happening then to the face of the earth; he can tell him what came before and what followed after. He can, by measuring the thickness of the stratum, give a rough estimate in tens of thousand years of the time which it took for the stratum to be laid down by rain and weather. That is the most he can do. In excavating the floor of a cave, the archæologist faces a like problem; here the matter deposited is chiefly the work of man, skeletons, tools, the remnants of meals, the slow dust of time. Here also rough estimates are the best one can expect.

Take, for instance, the important question of the total length of the glacial periods; that is to say, of all Quaternary time. The figure of 500,000 years has been mentioned as a rough estimate. In fact, the estimates of the geologists range all the way from 100,000 years to 1,000,000 years. It simplifies proportions to use definite figures, but it must be clearly understood that 500,000 is simply a rough average of the many estimates and possesses no pretense to accuracy or finality.

The farther back the record of man is traced the hazier becomes the picture, the more limited the evidence. A point is finally reached at which the existence of weapons and tools fades into doubt, and for actual human bones there are only the remnants of three skulls, one from Java, one from Germany, one from England, all much debated, upon which to base a reconstruction of such men as then lived. Digging for remains of early man is going on constantly, in India, and elsewhere, wherever the hypotheses of the archæologists suggest the likelihood of discovery. At any moment there may appear fresh facts as to these first men. But at the present time little can be taken as certainty in these early years, and the hour which holds the greatest interest is that in which the picture first becomes definite

and undebatable—when the stone weapons clearly chipped by human hands are found in quantity and enough skulls and bones are in existence to present the men to us clearly. That is with the arrival of Neanderthal man, thus named from the cave near Düsseldorf, in Germany, where the first skeletons of this type were found. That important event has been dated by the geologists as having taken place in one of the warm periods between glaciers. But, as has been noted, there is much doubt as to how many advances and retreats of the glaciers took place, and there is some doubt as to exactly which warm interval saw the development of the Neanderthal man. Going back to the question of years, the best one can say of this clear arrival of man is that it took place not less than 50,000 years nor more than 200,000 years ago; and that accepting for convenience the figure of 500,000 years as the total length of the Ice Age, these men first began to chip stone weapons in Europe about 100,000 years ago. (A far earlier date would be urged by some scientists.)

Thousands of these stone tools and weapons have now been discovered and studied and classified in Europe, and the archæologists have based upon them an accurate and fairly detailed history of the development of these early men. In the deeper strata the stone weapons are the roughest sort of rocks, chipped a little on one end to give a sharper edge, and that is all. They improve until at the end, just before the discovery of bronze, these early men of Europe were chipping and polishing spear-heads and axes as beautifully proportioned and finished as any modern tool of steel.

For something like three-fourths of the Stone Age, primitive man never thought of polishing his stone tools. He chipped them, flaked them more and more expertly, but never attempted what seems the obvious and easy job of smoothing their surfaces. For some 90,000 years (by the

rough estimate) he waited to make this simple invention. There could not be better proof of how slowly and painfully the first gains were won. Thereafter, the pace steadily quickened. Man—the most advanced man, that is—remained in the age of polished stone tools for less than 10,000 years (perhaps as little as 5,000 or 6,000 years); he discovered bronze, used it for 1,000 to 1,500 years, and then made the greatest discovery of all, iron, by which the modern world has been built. Roughly speaking, man began to leave written records about the time of the discovery of bronze; therefore the Bronze Age marks the beginning of historic times. It lasted from 4000 to 1500 B. C. in Asia, and from 2000 to 1000 B. C. in Europe. (The Bronze Age and Iron Age overlapped. There is evidence of iron in Babylonia as early as 3000 B. C.)

The archæologists divide the Stone Age into two periods: the Old Stone Age of chipped tools and the New Stone Age of polished tools. For these, the names Paleolithic Age and Neolithic Age, of Greek derivation and meaning the same as the English phrases, are often used.

This arrangement of prehistory about great inventions has been more or less compelled by the fact that it is the remains of these inventions, arms and tools, which yield most of our knowledge of these periods. There is considerable logic, also, in dividing the record of man into these periods. The history of man is largely a history of great inventions. They are closely akin to the developments of legs or wings or other organs in the evolution of living things. Man has, for a good illustration, developed wings of his own in the last generation, which must, in the long run, have a great effect upon his outlook and way of living.

Nevertheless, inventions are not the whole story. These same Old Stone Age men, who never learned to polish their tools, reached a state of civilization of real worth. Side by side with this primitive state of tool-making there flow-

ered a beautiful and clear-seeing art, a respect for the dead and thought of life after death. The Greeks reached a freedom of mind and a beauty of expression in all the arts which have never been surpassed, and that without telephone or telegraph or railroads or printing-presses. They had no more to work with than has the most backward peasant of Europe—the simple hand processes of weaving, the making of pottery, stone-cutting, and the forging of iron. (The Greeks of history coincide with the rise of the Iron Age in Europe.) Plainly there is much more to life than inventions in the modern sense of the word.

Of the great inventions of man, using the word in its broadest sense, several of the most important were achieved even before the Old Stone Age. The family and the hunting-pack undoubtedly came to man from the dim past of animal life; both of these groups and loyalty to them were already warm in the hearts of man before he began even to chip stone weapons. The use of his hands may fairly be classed as the first great invention of man; in fact, it may be considered that all he has done since is to add new tools from the outside world to these parts of his body, his first tools. Fire and speech are the other two great inventions that followed. With this early equipment should also be classed some belief that seems a forerunner of religion, for the earliest complete skeletons of paleolithic men that have come down to us show by their manner of burial that there then existed some thought of a life after death. These first stone-using men had therefore already gained much. From the modern point of view which lays stress on bathtubs and fast railroad-trains, they had little; but they had most of the essentials of the highest civilization. Parents loved their children and cared for them, there were groups or communities to which every one owed loyalty, there was fire to cook meat and make caves warm, there was talk, there was thought of something beyond the natural world.

Man has done wonders since with this raw material of civilization. He has added but little to its list of essentials.

2. THE LOST AGES

One cannot help feeling intensely curious about that great gap in the history of man which stretches from the age of the primitive mammals at the beginning of Cainozoic time, some 5 million years ago, down to that relatively late hour perhaps 100,000 years ago, when the first certain proof of his presence begins. When a clear trail is picked up in the Old Stone Age, it is clearly man far along on the road of development. Fifty thousand years ago there were brains as large as brains of to-day. There were probably beings who were unmistakably human on the earth at the dawn of the glacial period, 500,000 or more years ago. The trail may be found even farther back. There was no sudden arrival of man in any case; one must picture a long period of time, tens of thousands of years, in which it would have been impossible to say whether these ancestors of ours were men or not.

As to the place of man's birth, modern scientific thought has tended to converge upon central Asia. Earlier guesses suggested Africa, and there are still many scientists who hold to the African hypothesis. But the discovery that most modern mammals developed in Asia and that the most primitive skeletons of apes have been found there has brought forward the hypothesis of central Asia as the cradle of man. It is only an hypothesis, however. Africa has been very inadequately explored. So have Asia and the Malayan Archipelago. There is the additional possibility that man developed on a lost continent, perhaps on that Gondwana Land, for example, which geologists believe united Africa and India until Cainozoic time.

Purely as an hypothesis, to show the present direction of

scientific research, and to make these remote ancestors more real, here is a picture not of how man did come but of how he may have come.

If, then, man did first appear in central Asia, it was very possibly about the middle of Cainozoic time that he first became a separate species. It was then that the great trough of the ancient Mediterranean began to rise, and, first in the west, then running eastward, the great folds of the Alps and the Himalayas were thrust skyward. These colossal changes in the surface of Europe and Asia meant great changes of climate. The lands were higher and wider, the air dryer and cooler. Forests gave way to plains. The development of the grazing animals dates from this time. It was a typical period of change and trial, of severe, enduring test for existing species, when natural selection was weeding out the unfit at a quickened pace.

Upon certain small hairy animals, mostly tree-dwellers, some perhaps living on the ground, the test was especially hard. Their home was slowly disappearing about them, and with it their chief protection from sabre-toothed tigers and the other great carnivora who thrived in this period. The weather, too, grew colder. The old tropical warmth and comfort and safety for tree-dwellers were slipping away. A new world was at hand, for which most of them were ill-fitted and unprepared.

If, as the prevailing hypothesis of scientists has held, man's ancestors once lived in the trees, the important event of the descent to the ground may have taken place at this time. If the tree-apes were a separate stock, his ancestors were already on the earth, and their task was one of adaptation to cold and opener country. In either case the tree-apes who could not face the new life drifted southward by their familiar tree-road clinging to their warm and safer homes, retreating before the threat of cold and danger. In each direction were different climates and ways of life, and

in each direction there slowly developed the different varieties of apes. The ancestors of the chimpanzee and gorilla wandered to the southwest and settled in Africa; the gibbon developed in India, the Malay Peninsula, and the islands beyond, then attached to the mainland; the orang grew to his giant size in what are now Sumatra and Borneo. Certain other apes spread westward into Europe, but the climate was not favorable and they died out there with the coming of the Great Ice Age.

Man, or the ancestor of man, remained to do battle with the new world. Why did he remain? How was it that instead of succumbing to the strain of cold and new perils, he succeeded in adapting himself to his new life and grew in sense and skill so that unarmed by tusk or claw and unprotected by shell or hide he survived to become master of the mightiest beasts of prey? Science has no answer and here is the same old riddle. Why does one boy struggle upward and become Abraham Lincoln and another not? Why has one nation survived while others passed away? Why did the first amphibian crawl out upon the dry land, the first fish grow a back-bone, the first creature like the amœba learn to pull himself around, the first living matter begin to live? It is all one story and all one mystery—the mystery of life. Science has made enormous progress in discovering the laws which govern growth. Why living things grow, why, age after age, they thrust up and up and struggle on and on, till some few are enabled to hold the ground won and prepare for a fresh charge, is still hidden.

It was formerly thought by some scientists that man must have had a diverse origin, that the negro and the Chinaman and the European could have had no common ancestor who was human, that each was descended from a different type of apelike ancestor. But a closer study of anatomy has tended to unite scientific opinion on the con-

trary view. One is therefore justified in considering it probable that every man upon the earth to-day is descended from this single stock of manlike forebears produced by this struggle with fate, perhaps on the highlands of central Asia. Their differences of color and appearance have developed exactly as have developed the several kinds of apes, or the different varieties of any animal, through the effect of climate and manner of living slowly, invisibly altering skin and feature through the ages.

The first dispersal of man's ancestors took place many tens of thousands of years ago, probably long before the record of man in Europe begins. But the examination of prehistoric records in Africa and Asia is still too incomplete to permit even guesses. A convenient hypothesis is to think of man's ancestors as setting forth in a long series of waves from this common centre of his development, broken here, failing there, but slowly peopling the world, and each taking on the color and character produced by his peculiar habitat. The ancestors of the Negroes drifted southwestward into Africa and southeastward along the Malay Peninsula and the islands clear to Australia. The forebears of the yellow Mongols turned eastward into China and Japan, where the vast Pacific halted them for tens of thousands of years.

Here is no one migration but the slow drift of peoples. At what point and by what route the first men came westward into Europe is unknown. But the Caucasian is a type markedly distinct from both Negro and Mongol, and his differentiation must have begun far back in the Great Ice Age. South, East, and West, then, these three streams of humanity have poured through the ages—to become, after tens of thousands of years, black, yellow, and white. It should be added that the yellow men pushed across Alaska in these far ages and became red men, the American In-

dians—or, at least, such is the prevailing hypothesis as to the origin of this rather puzzling race. If so, one can think of the two mighty streams of humanity, the East and the West, finally girdling the globe and meeting one another face to face in America. The victory has here been an easy one for the white man, the Westerner, who has for long been the great adventurer, the explorer, the developer of the earth. But the story of evolution should lead us to take a somewhat larger view of human progress and not lightly dismiss the yellow race. The Easterner has not been a success overseas, and he has preferred to stay at home and cultivate his own continent. For this present rough outline, one can think of the westward-pushing white men as spreading thinly far and wide over all the continents and all the seven seas; and of the yellow races as staying stolidly at home to become great reservoirs of humanity, piling up an enormous concentration of man-power, unhurried and unspent.

In this discussion of races and movements we have been ignoring the difficulties of mixed races and cross-currents. We have been endeavoring to look beneath the turbulent confusion which the sea of humanity presents on its surface, to its deep and invisible currents. What has been said can be thought of as true only when thus broadly applied.

We can discuss the development of the first four distinctive human powers only in the same general terms. These are the erect attitude, the opposable thumb, the power of speech, and the new growth of the brain. It was the erect attitude which freed the fore paws of man's ancestors and enabled them to become hands, and therefore this attitude may be considered as the basis of man's whole progress. The ability to move the thumb so as to grasp a stick or a tool between it and the other fingers is of not less importance but it clearly followed in point of time. The beginnings of speech, however rude, doubtless came in this early

prehuman period. All three of these factors developed the brain as it had never been developed before.

The old idea that man was but recently developed from a shaggy brute has long since vanished. When man first clearly appears upon the scene in the dim mists of time, he already walks erect, his thumb is well developed, the brain is far along the road to full human capacity. He felt some of the emotion that every one feels, love of family, loyalty to his group. There are few epochs of history as stirring as this first, long, up-hill battle wherein, for the first time in the world, a small, comparatively weak creature by sheer brain-power fought his way to mastery. Never have so many beasts of prey roamed the world as then hunted in the forests of Asia and Europe. From the valley of the Thames on the west to the plains of India on the east there was war to the death between sabre-toothed tigers, hippopotami, the mammoths, rhinoceroses, and every lesser carnivore. Man outguessed them all.

3. FIRST TRACES

The preceding section dealt wholly in surmise, in those first hypotheses of scientists based upon probabilities by which they begin to work. The next chapter will rest upon sure ground; the stone weapons and tools there to be described are as real and unquestionable proof of man's existence as an Egyptian pyramid or the Declaration of Independence. This section crosses an intervening field of increasing probability.

Parts of three early skulls (with a few other bones) constitute these first traces of man. The first skull was found in Java, the second fossil, a lower jaw only, in Heidelberg, Germany, the third in Piltdown, in Sussex, England. The first skull was found in strata probably contemporaneous with the beginning of the Ice Age in Europe—at least 500,000 years ago. The other two are later, how

much later it is difficult to say. All three skulls have been studied by anthropologists for many years and a wealth of minute analysis and painstaking reconstruction has been made. In general, these three finds have withstood this cross-fire of criticism well. It is altogether probable that here are the skulls of three exceedingly primitive men. But as to specific details, the precise period when each man lived, and the physical appearance of each, there has been much divergence of opinion and there remains great uncertainty.

Upon the basis of each skull it has been sought to reconstruct the type of being represented. The Java-skull type has been named pithecanthropus erectus, which is to say, "ape-man who stands erect." The top of the skull, a few teeth, and a peculiar thigh-bone (found about fifty feet away and perhaps belonging to the skull, perhaps not) are all there is to go by. He has been frequently referred to as the "ape-man of Java" and been hailed as the "missing link." How inaccurate this latter phrase is as applied to any one ancestor of man has already been explained. It is especially misleading when applied to a being as vague and hypothetical as the owner of this Java skull. Nor is the scientific name of "pithecanthropus" or "ape-man" much better. In all probability the owner of the Java skull possessed a brain far greater in size than that of the largest monkey brain, and the prevailing view tends to regard him as a true primitive man and not an ape at all. On the other hand, there are other scientists who contend that he was nothing but a huge gibbon, an ape and nothing more. Many interesting efforts have been made to picture this being, but not enough of the skull was preserved to make its shape, let alone its facial expression, clear. When other skulls of the same era have been discovered it will be time to attempt greater precision. For the present pithecanthropus belongs rather to the scientists who can debate his probable charac-

teristics with a full sense of the grave doubts surrounding his misty existence.

The famous Heidelberg jaw was found in 1907 in a sand-pit seventy-nine feet below the surface of a bluff in southern Germany. The skull had been destroyed, but fortunately the teeth, the most significant part of a skeleton, were well preserved, and there is now general agreement among scientists that here is unmistakably a chinless, primitive, human jaw. In some respects it resembles the powerful jaw of the modern Eskimo, who, like any primitive man, uses his teeth as tools for tearing hides or what-not. The strata in which it was found would place it long after the Java skull, roughly half-way between that beginning of the Ice Age and the arrival of Paleolithic man some 100,000 years ago.

More of the Piltdown skull was found, but, unfortunately, so broken and scattered as to cast grave doubts on the reconstruction which has been attempted. It is probably later than the Heidelberg jaw and differs from it radically in head form. If the reconstruction in the British Museum is correct, here was a well-developed human brain (almost as large as modern brains) set in a skull with a jaw like that of a chimpanzee.

There are no unmistakably chipped stone tools or weapons in the strata with any of these early remains. But some scientists believe they have found rude stones, slightly chipped, which were the weapons of the Heidelberg and the Piltdown men. It would be expected that man developed his use of weapons in this fashion: before he learned to make weapons he grasped a branch or hurled a stone that fitted his hand. Unfortunately these early stones cannot be accepted with confidence as true weapons, for there is no proof that the slight chippings on them did not take place naturally, as the result of frost. It is only when stones are found unmistakably chipped by human hands

that the Age of Paleolithic Man surely begins. The question of these earlier weapons must be left to the scientists for further study and decision. They probably belong with the other doubtful traces of man in this hour before dawn when mists still cling to the earth and one can dimly surmise shapes without being certain of their reality.

CHAPTER VII

ANCIENT HUNTERS OF THE OLD STONE AGE

I. NEANDERTHAL MAN

THOUSANDS of stone weapons and tools have been found to bear testimony to this period. Half-way along in it skulls and skeletons begin to appear. Parts of more than sixty human beings have been found who lived within its limits. In addition, there are, toward the end, cave paintings and bone carvings.

It is not a smooth, connected record. It breaks sharply as the first race of man declines and disappears and a new race arrives upon the scene. The Neanderthals were the first race. Among the later races was a far greater people, the famous Cro-Magnons, best known by their caves in southern France and Spain. From one point of view this break is an interesting landmark in the story of man, for the earlier race differed markedly from later Europeans and, in the opinion of most anthropologists, died out, leaving no

descendants; whereas the Cro-Magnons far more probably may be numbered among our ancestors, our earliest known human ancestors. After a brilliant climax of art in the caves of France and Spain, their story ends in darkness. But that need not surprise one. All history is a succession of such flowerings followed by decay as surely as night follows the day.

This record of stone tools begins in Europe in one of the warm spells between the extreme advances of the glaciers. For at least 50,000 years it is a question of stone relics only. Then begin to appear the human remains of the Neanderthal race. Roughly speaking, the story of these Neanderthals begins at least 50,000 years ago, and lasts until the final descent of the ice, perhaps 25,000 years ago.

The first traces of the Cro-Magnon culture appear as the last ice-caps retreat northward, and their culture, with other late cultures, lasts until the beginning of the New Stone Age, somewhere after 10,000 B. C.

The weapons of the Neanderthal men and their skeletons have been found widely distributed over Europe. There is a sufficient resemblance among the skulls and other bones to convince the anthropologists that here is a single race of primitive man that inhabited Europe throughout these 25,000 years. Very possibly their ancestors dwelt there for many thousands of years before; but lacking skulls or skeletons, one cannot be sure. There is some certainty, at any rate, as to how these early hunters looked. They were stockily built, standing about five feet six inches high. Because of the structure of their knee-joints, they could not fully straighten their legs. Their hands were large for their size and their brains were as large as man's of today. But the shape of the skull shows that theirs was a primitive brain; and the face was equally primitive, chin retreating, jaws massive, brows heavy and overhanging, forehead retreating. So far as can be judged from their

skulls they were not far from the mental development of the lowest human races of modern times, certain natives of Australia, who are still alive, and the Tasmanians who died out in the last century.

It is chiefly by their stone weapons and tools that scientists surmise the manner of life of these first Old Stone Age men. Only a brief summary can be devoted to the gradual development of these flint pieces. In a museum one can in a few minutes stroll past rows of them covering the whole period. From a modern point of view the progress won is small. Yet their story is the story of over 100,000 years, fifteen times the entire historic period from the discovery of bronze to the invention of flying-machines and wireless telegraphy.

The *coup de poing,* or "fist-hatchet," was the chief tool and weapon of these first-known men of Europe, and it shows a continuous development into and through the period of the Neanderthals. It was from four to nine inches long, more or less almond-shaped but decidedly thicker at one end. It had sharp edges and a thin point, and was made by chipping rough flakes from an oval lump of flint. Held in the hand by the thicker end, it could serve as dagger, knife, saw, or spade. Turned end for end, it made a good enough hammer. It was a combination tool. In the earliest strata the chipping is slight and rough. In the course of 100,000 years the Neanderthals and their forerunners learned to chip much more expertly and to turn out different kinds of fist tools each fitted for a special use, for scraping, for boring, etc. They also made small pointed flakes of flint, but there is no evidence that they ever used them as spear or arrow heads. Toward the end of the 100,000 years the tools became smaller and the chipping rougher. At the same time these primitive men took to the caves, perhaps because the coming glaciers sent the breath of their cold before them. Mousterians these men are sometimes

called, after a famous cave in southern France. They are the first of the cavemen.

It is not necessary to dismiss these Neanderthals and Mousterians as so many vague hairy fellows squatting around Europe. They were hunters, for they killed and ate wild animals, from the woolly rhinoceros down to the ponylike horses that then trotted around Europe. This is known, because the remains of these animals have been found with Neanderthal tools. How they killed the giant carnivora is not as clear. The *coup de poing* was no weapon with which to face a woolly mammoth or a lion. The sabre-toothed tiger had vanished, but most of the other great Quaternary animals still roamed the jungle where now is Paris, and across the dry land where to-day is the British Channel to the valley of the Thames flowing past uninterrupted forest. The surmise is that they trapped them in pits, and some British scientists believe that they have found in Dorset remains of a great elephant-trench. It was one hundred feet long and twelve feet deep, open at one end, closed at the other. African natives trap, disable, and kill elephants by driving them into just such pitfalls to-day. Perhaps the Neanderthals were as clever. They were certainly clever with their hands at chipping flint, as any one can find out by trying to make a stone tool as sharp and symmetrical as any *coup de poing* of the Neanderthals. Also they had fires, for their hearths have been found. So they may have cooked their meats. The scraping tools point pretty clearly to their preparing hides, and as they lasted into an era of great cold, it is probable that they dressed in skins. No trace of any domesticated animals has been found—not even a tamed wolf-dog. The Neanderthal man ate his horses instead of riding them.

There are also facts like the following. In the famous grotto of Le Moustier in southern France there was found in 1908 a complete Neanderthal skeleton. It belonged to a

boy, perhaps sixteen years of age. The body was carefully laid out, the head resting on a pile of flint fragments carefully set together. Close by the right hand was a beautiful *coup de poing,* of exceptionally fine workmanship. Around the body were the split and charred bones of wild cattle. All this was an unmistakable burial similar to countless ceremonial burials of later times. So here was respect for the dead, perhaps love of a child, and certainly a thought, however dim, of some kind of life after death. Was this religion? These early beginnings of belief will be examined together a little later. For the moment, it is plain that however savage a creature Neanderthal man may have been, he was already, 100,000 years ago, far removed from ape or any animal. One must be careful not to romanticize him and read into him one's own ideas or even the ideas of savage man of to-day (who has these 100,000 more years of experience to his advantage). But if one pictures him squatting before his cave, shaggy, dirty, his great nostrils quivering as he tears the meat from a bone with his teeth, one must equally do him the justice of picturing the human emotions already stirring within him, forerunners of all civilization.

Neanderthal man vanished, perhaps killed by the cold or an icy flood, perhaps killed by his successor, the superior Cro-Magnon man, who arrived from the south with spear, and maybe arrow. Most anthropologists view him as a dead end, a blind alley, passing on nothing to his successors. It is interesting to study him, however, because his fate yields thus early an example of the rise and fall of peoples. Neanderthal, Cro-Magnon, Neolithic man, Egypt, Babylon, Persia, Greece, Rome, all have shared the same growth and decline. The Neanderthal was unlucky if he left not even his blood to flow in the veins of descendants. In historic times there seldom or never has been a complete extermination of a race, however abjectly conquered. But

touching power, achievement, growth, the story is the same. The Neanderthal rise and decline parallel the career of one civilization after another.

The story of these Old Stone men of Europe who chipped their flint tools, without polishing them, for more than 100,000 years, is the one clear record of this stage of man's progress that is known. Similar tools found widely distributed on other continents suggest that man all over the world went through a similar stage. They are lacking in Norway and Sweden and elsewhere throughout the region of the glaciers, areas which were uninhabitable during the European period of this development. In North America many Indians never progressed beyond chipped stones. Hosts of savages the world around, in Africa, in Australia, in Oceania, shared the same fate. But the records of this age are too fragmentary save in Europe to write all its chapters. Archæology is a young science, and it is naturally in Europe, the birthplace of modern science, that it has made the most progress. One must therefore avoid the mistake of thinking that this early European record, ingeniously pieced together by scientists, is unique. To the contrary, it probably represents a long chapter in the history of most human races.

The time at which it occurred varies greatly in different quarters of the earth, and in the present state of knowledge it is impossible to say with certainty whether, for instance, the Early Stone Age in Asia came before or after that in Europe. But in the New Stone Age western Asia, Egypt, and Greece were one or more thousand years in advance of western Europe; similarly, the Bronze Age and the Iron Age began one or two thousand years earlier in this region. Perhaps in the same fashion, when modern science can penetrate to the heart of Asia, it will be found that Paleolithic man learned to chip flint tools there long before his European brother. If so, there would be a neat story of

man's progress that might fit in well with the theory that he originated somewhere in central Asia. But history is seldom neat, and this leadership of Asiatic man in the Old Stone Age is still surmise.

2. THE GREAT CRO-MAGNON RACE

By the fact that he did not polish his stone tools the Cro-Magnon is classed with the Neanderthal man in the Old Stone Age. His immense superiority over his predecessor is obvious and clearly justifies separate treatment. His story is one of the most amazing chapters in human records.

Physically he was a singularly fine type of modern man, one of the finest the world has ever seen. He stood six feet tall and had a brain capacity well above that of the average man of to-day. The meaning of this must not be exaggerated, however; quantity is important in brains, but quality is the decisive factor. His forehead was high and broad, his nose aquiline, his chin prominent and massive. His head had one striking peculiarity; it combined wide cheek-bones with a narrow skull. That is a rare type, and on the basis of it anthropologists have attempted to trace Cro-Magnon blood among Europeans of to-day. It is an extraordinary fact that the same peculiar skull still exists among the inhabitants of Dordogne Valley in France, where these Cro-Magnons especially flourished. It is also found in Brittany and the Canary Isles.

The Cro-Magnons were the famous cave-dwellers of southern France and Spain. Whether they drove out and killed the late Neanderthal men, the Mousterians, or whether these predecessors had already died off, is not known. They moved into the caves, at any rate, and their remains are found in the strata above the Mousterians. They were great hunters and fishermen. The reindeer, roaming the Pyrenees as the last ice-floes slowly retreated northward, was their especial prey, and the time is there-

fore often spoken of as the Reindeer period. Bison, bears, elephants, ponies were equally their kill. They never polished their stone tools but they learned to turn out exquisite pieces of workmanship by chipping, far superior to the best Neanderthal work. In the height of their progress they discovered the possibilities of bone and horn, and gradually developed the manufacture of bone harpoons for fishing, bone barbs for spears, and bone needles for sewing.

It is their art, their drawings and paintings on the walls of caverns, and their carvings of bone and ivory that have brought them their chief fame. Here in these dim caves, at least 15,000 or 20,000 years ago, these ancient hunters learned to draw animals with a skill that has never been surpassed. No modern animal-painter does better than these drawings, literally the oldest pictures in the world. No man of historic times has seen a hairy mammoth alive; thanks to these Cro-Magnon artists, we have a perfect idea of them. There are several distinct varieties of horse (including the wild ass) shown. The bison was a favorite subject, and at the height of Cro-Magnon art inspired some wonderfully lifelike and decorative pictures. These wall and ceiling paintings are fairly large; the animals are often four or five feet long. The carvings on horn are necessarily small but of equal artistic merit. The history of this art shows just what might be expected from the records of modern civilizations, crude beginnings, a steady increase in skill and variety to a perfect flowering, and finally decline and disappearance.

One extraordinary feature of these paintings is that they were painted in the dark, for the most part, in the far depths of meandering caverns, sometimes hundreds of feet from daylight. The artist must have worked by torchlight and he must have worked from memory, with no model before him. Often the best paintings are in the innermost recesses, small caves to which one must crawl on one's hands

and knees. Modern art is a thing to be displayed, either in churches or homes or museums. From the days of the Greeks onward, artists have made beautiful things to awaken high emotions in as many people as possible. Why did these first great artists work thus far away from daylight and a public?

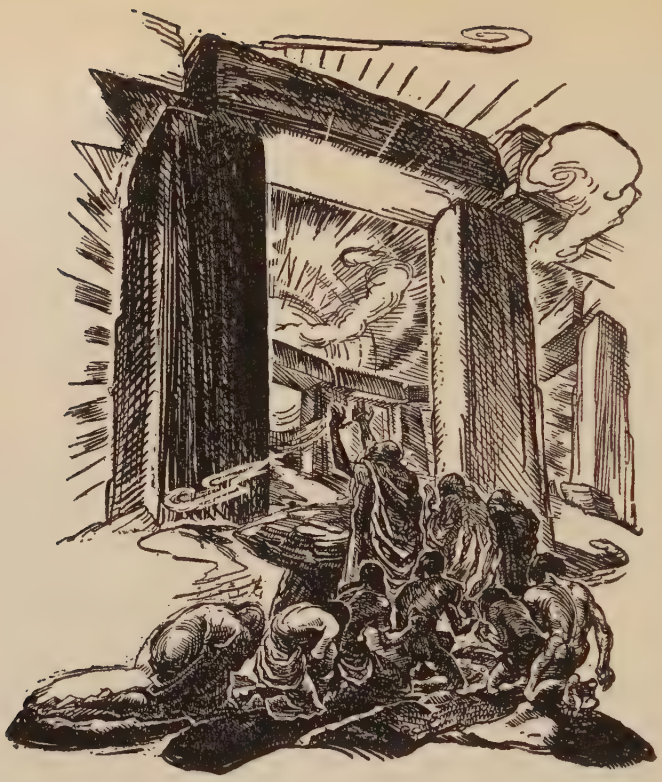
The answer is by no means certain, but the hypothesis upon which archæologists are working is that the paintings formed part of a primitive faith. This form of worship is frequent among living savages to-day. Among certain tribes of Australia painting the picture of an animal on a rock, or the symbol of an animal, forms a regular part of solemn ceremonies by which good hunting of that particular animal is sought. Now it is a striking fact that all the animals painted in these caves were animals that it was desirable to hunt and kill. The lion lived in these years, but not a single picture of the lion, a dangerous animal of little value, has been found. Nor is there a picture of a hyena, a jackal, a wolf, or a serpent. The guess is that these Cro-Magnon paintings were the work of priests, trained, highly skilled craftsmen, who drew these pictures of bison and reindeer and mammoths, probably chanted sacred words before them, perhaps whirled a stick about to make a noise, and, thus worshipping in their primitive fashion, counted upon gaining a fat kill for the waiting huntsmen without. If so, there is justification in the comparison which R. R. Marett, the British anthropologist, makes between a Cro-Magnon cave and a cathedral. Thousands of years separate the conceptions involved. Not enough of savage ideas is yet understood to say whether such rites deserved to be classed as truly religious. Perhaps magic, the forerunner of religion, is a more accurate term. Yet these men made frescos, wonderfully beautiful ones, quite as civilized man has painted frescos in his cathedrals. They had the majesty of dim lights and a stone hall. They were seeking to solve the mysteries of life by such rites as they knew.

Nor was the art of the Cro-Magnons restricted to these religious paintings. As among every artistic people, the effort to beautify extended to every utensil of ordinary life. They carved their javelin points, their dart-throwers, and their harpoons. The red deer on the most famous of all Cro-Magnon drawings were engraved on an antler of a deer, and the horn thus decorated was perhaps a ceremonial wand, a sort of primitive sceptre. There are not many attempts at the human figure by these Cro-Magnon artists. But there are a few sculptured works, including the head of a woman wearing a striking head-dress. There are also in one Spanish cave the drawings of some women with strange high hats, narrow waists, and flaring skirts. No fashion-plate could give a clearer idea of a costume, and it is anything but the dress of a savage.

Unfortunately, the Cro-Magnons did not have a written language, as far as is known; and if they had homes other than caves, they were doubtless tents of skins which have left no trace. It is known that they buried their dead carefully amid small perforated sea-shells and surrounded by yellow ochre or a red coloring matter, the same colors in which they painted their bison on the cave walls.

This extraordinary people possessed an infinitesimal part of all that modern man regards as civilization, yet rivalled his best in the matter of pictorial art. Historians who care little for art have been disposed to dismiss the Cro-Magnon pictures as simply another example of primitive, savage art. It is true that savage tribes often do have an interesting sense of the beautiful and that some skill in drawing is found among low civilizations. But the Cro-Magnon art, according to those best qualified to speak, the artists, is something different. It so far surpasses all other savage art, in observation of nature and the portrayal of the simplest essentials of form, as to place its creators in a class by themselves. "What is a savage, anyhow?" one is

tempted to ask before this race of mighty hunters and mighty artists. It is to be hoped that more will be discovered concerning them and that scientists will some day better understand how they accomplished so much with so little; how, in the cold of retreating glaciers, sheltered only by caves and tents, living as lived the redskins by fish and game, they yet handed down the ages beauty of which Greece or Rome or the greatest moderns might be proud.



CHAPTER VIII

HERDSMEN AND FARMERS OF THE NEW STONE AGE

THE scene changes and man changes with it. There could not be a sharper contrast than that between the Europe of the Old Stone Age and the Europe of the New Stone Age; between the hunters who dwelt in Europe down to 10,000 B. C. or thereabouts and the flock-tending, land-tilling men who came after. The last glaciers retreat into the arctic circle, taking the reindeer with them. Mammoth and elephant vanish from the south of France; the rhinoceros no longer swims in the Thames; oak and fir give way to chestnut and beech. The land bridges across the Mediterranean are broken down; England begins her island story. The

Europe of to-day has arrived, and in its mild climate and upon its fertile soil are laid down the foundations of the Western world.

One must study this age in Europe where the records are fullest. But, as with the Old Stone Age of hunters, it is to be viewed as a general stage of progress, and in fundamental achievements has been passed through by most peoples of the world that have advanced out of savagery. It did not, however, occur at one time the world over or last a uniform period or reach a uniform height of civilization. The New Stone Age in western Asia, Egypt, and Greece began sooner and ended sooner by a thousand years or more than in Europe. The Americas were probably thousands of years behind Europe in developing. In North America the mound-builders of the Ohio and the Mississippi valleys represent somewhat the same stage of civilization; they arrived late, and their successors, the Indians, never progressed farther, perhaps even retrograded. The Mayas of Guatemala and Yucatan and the Incas of Peru reached a similar stage at a date as yet undetermined, but certainly much later than Europe. They achieved an extraordinary civilization in stone and were working gold, copper, and silver when the Spaniards conquered them. The Mayas had already abandoned their stone temples and were declining at this time. The Incas of Peru were still flourishing, and might well have flowered into a great civilization but for the cruel conquest that blotted out their hopes.

There were six main achievements of this age in Europe:

1. Polishing stone stools and weapons.
2. The taming of domestic animals.
3. The beginning of agriculture.
4. The making of pots.
5. The plaiting of baskets and the weaving of cloth.
6. The raising of megaliths, or great stone monuments.

It is by the polished tools that archæologists fix the lim-

its of this period. Obviously there are more important achievements on the list, and the stressing of this item is simply a matter of convenience, based on the fact that tools have come down in quantity, and it is by them that the chronology of the period can best be fixed.

Nevertheless, the invention of polished stone tools was a long step ahead. Smoothing the surface of the stone axe enormously increased its efficiency, and as a farther improvement Neolithic man discovered how to put a handle to it, first by lashing it to the axe-head, later by boring a hole in the axe-head, like any modern axe. Alongside the axe slowly developed a carpenter's chest of tools—chisels, drills, and saws. Some Danish archæologists made the interesting experiment of seeing how much work a modern woodchopper could do with these 6,000-year-old tools. In ten hours he felled twenty-six pine-trees eight inches thick and cut them into logs. A whole house was built by one man in eighty-one days, including the cutting of the timber. A wholly new level of mechanical skill was reached in this period, making possible for the first time the building of true houses. This rather obvious improvement in tools was a basic matter in the growth of civilization.

It may seem strange that it took over 100,000 years for European man to discover this trick. Sand for polishing was at his elbow throughout this period; a whetstone could be had for the taking. The explanation is that most great inventions are childishly simple. There was writing in the world for 5,000 years before any one thought of movable type. Steam had been pushing lids off kettles ever since the kettles of Neolithic times, but to no purpose until James Watt saw the steam-engine in it. Minds have improved, but that is a small part of the progress. The world advances faster than it did chiefly because of the accumulated wisdom of the ages which each generation now inherits. New ideas still come painfully and slowly. Original think-

ing remains the rarest thing in the world, exactly as it was in Paleolithic days.

It is in the kitchen-middens along the coast of Denmark, of some 10,000 years B. C., that the bones of the first domesticated dogs are found. These are long piles of bones and skulls, the refuse of prehistoric Norsemen who dwelt in wattle huts (made of plaited reeds daubed with clay) and pushed offshore in rude boats. It is possible that dogs were tamed by Paleolithic hunters; one cannot feel altogether sure of the negative evidence here. But it is fairly clear that the dog was the first wild animal to become the friend of man, and that this important event had happened before this time. This first dog of the Danish skull-heaps was of a jackal type like the modern Eskimo dog, but smaller; later a larger dog, more like the wolf, was tamed to guard sheep. He may have been the ancestor of the modern collie.

All this was in the rude beginnings of Neolithic culture. To see the full gains that followed, one must go south to the lake-dwellers of Switzerland, the most complete record of any prehistoric man that has come down to us. In so doing one passes to the end of Neolithic time in Europe, around 2000 B. C. The winter of 1854 was exceedingly cold and dry and, in consequence, the Swiss lakes sank to a lower level than ever before. In the wide mud-flats thus bared, there were discovered the tops of ancient piles, and near them bones, stone tools, and bits of pottery. Studying, collecting, and interpreting these strange records was a work of many years. Over fifty dwellings were found on Lake Neuchâtel and over forty on Lake Geneva and Lake Constance. Similar lake-dwellings have since been found wide-spread over Europe and in Britain. As many as 100,000 piles were used for one settlement. In some cases side-walls and floors have been found. Wattles covered with clay made the walls. The rooms were of large size, and there were stone slabs for hearths. A pile path-

way connected the village with the shore. Tacitus, the Roman historian, writing of later lake-dwellers, noted that they tethered their babies to keep them from falling into the lake. The picture is of thrifty folk living in safety and comfort much as did the Swiss Family Robinson in their home in the tree.

From the bones found, the story of domestic animals can be completed. Cattle, goats, and sheep followed the dog, and later pigs. Some of these are simply wild types of the region. Others seem to have been imported from the East. All lived in the pile buildings with their owners, much as in the Swiss châlet of to-day. There is no record of this important process of domestication. One can surmise that it took place slowly, through the gradual discovery that such animals, herded and cared for, were more useful than merely hunted. The change was of prime importance to man, for it marked the end of the huntsman and the rise of the herdsman. Neolithic man continued to live largely by the chase and fishing—men still hunt and fish to-day. But the main interest of his life was no longer in the forest.

With this shift is to be classed the beginning of agriculture. The hunters had always eaten wild berries, nuts, and fruits. Neolithic man undoubtedly harvested wild grains before he learned to plant them. Barley and wheat were the first grains grown. Much later, in the Bronze Age, appeared oats and rye. (American corn or maize is a purely American growth. It was the chief grain cultivated by the Indians when America was discovered.) Whole bushels of grain have been discovered in the remains of these lake-villages, as well as charred loaves of bread and hand-mills for grinding flour. No plough has been found, and perhaps these lake-dwellers still did all their farming with primitive hoes.

Every house had its loom, and cloths of flax finely woven, some fringed and embroidered, have been found. It seems

likely that they used the wool of their sheep, but no woollen cloth has been discovered. The pottery is primitive, made by hand, without a potter's wheel.

Although the remains are by no means as well preserved elsewhere, there is good reason to believe that this civilization of the Swiss lakes and the valley of the Po was widespread over western Europe at this time. The lake-villages were especially safe and peaceful, and may have prospered beyond land villages. But if no other evidence were at hand, one could be sure that large settlements spotted western Europe by reason of the megaliths which date from this period. These strange monuments are found in many parts of the world, all of the same general type, and pointing to a general stage of civilization and faith through which many peoples, far distant from one another, have alike passed. They are found in Great Britain, Sweden, Denmark, North Germany, Holland, France, Portugal, and Spain, in Sardinia and Corsica, along the coast of North Africa, in the Ægean Islands, in Palestine, along the Black Sea, in Arabia, Persia, and in India. Perhaps the mounds of North America belong to the same stage. Certainly the stone structures of Guatemala, Yucatan, and Peru offer a close parallel.

The huge stones are not architecture according to modern ideas of architecture. They are magnificent and impressive, none the less. The great circle of Stonehenge on Salisbury Plain in southern England is the most majestic of all. It is one hundred feet across, and its great upright stones are thirty feet high and weigh about thirty tons. This represents the very end of the New Stone Age (which lasted till 2000 B. C. in England) or perhaps the beginning of the Bronze Age. Its stones are more or less dressed; in this respect differing from the great majority of megaliths, which are simply huge works of nature transported and erected by man. At Stonehenge is an example of another

frequent monument of this period, an alignment; that is to say, long rows of parallel stones, like a straightaway race-course. The most famous of these alignments is at Carnac in Brittany, a centre of megalithic remains. There are 113 parallel rows in these alignments, which are nearly 2 miles long. Many of the stones stand 10 to 13 feet high. Another common type of megalith was a great single stone called by its Breton name of menhir. They suggest the Egyptian obelisk in rude form. The largest of these, in Brittany, was 67 feet long and weighed about 350 tons. It is now fallen and broken in four places.

As to the exact purpose of all three of these forms of megaliths, there is doubt. The great circle at Stonehenge was most probably an outdoor temple. Efforts have been made to associate it with some form of sun-worship. But nothing has been established as certain. Similarly with the alignments. They suggest race-tracks, and it may be that chariots once rolled down them. But there is not the slightest proof of this theory. The menhirs may have marked boundaries or meeting-places; in most cases they are monuments to the dead.

There remain to be mentioned the most common of megalithic remains, the dolmens (another Breton word), which are unmistakably tombs. These range from a simple chamber of four stones on edge with a great capstone across to long covered alleys. The remains of the dead have been found so frequently in monuments of this type that their purpose is clear. The tumulus, or great mound, is also frequently found as a burial-place.

An extraordinary number of these great monuments still exist after many years of destruction and removal. There are nearly 4,500 in France and as many in England. Plainly Europe was well populated in this age, and there were villages of considerable size. Raising such huge stones is no easy task for a primitive people. There is no evidence

as to how the work was done, but it is a safe presumption that inclined planes of earth were used and the power was furnished by a huge number of men, pushing and pulling. That is the way the great stones of the Egyptian pyramids were being erected about the same time.

The religous ideas of this period can best be discussed in a general account of early religions. Plainly here was belief of a powerful and outstanding influence. Why else these giant tombs and monuments of colossal stones in an age when men were living in wattle huts? There are two other aspects of the period which deserve mention. No such stones could be raised, no such large groups could live together, without the beginnings of community organization, by tribe or clan or what-not. There were also the beginnings of trade and commerce. Flint-mining was an active business carried on where the flint was best. Such a Neolithic mine has been found in Suffolk, England, known as Grime's Graves. Near by was a Neolithic workshop, with Neolithic tools in every stage of manufacture. In the mine were found deerhorn picks, and in their coat of chalk dust was still to be seen the imprint of the workmen's fingers just as they dropped the tools at the end of a Neolithic day's work. The amber found along the Baltic was traded in all over Europe by the end of the Stone Age. Strings of amber beads appear in graves far and wide.

The New Stone Age seems to have been above all a practical age, and it has left no art to compare with the Cro-Magnon art. Neither pictures nor carving appealed to these first herdsmen and farmers absorbed in the important business of conquering a comfortable living from the earth. Such love of beauty as they had they seem to have lavished upon the workmanship of their stone tools, which are often exquisite in shape and finish, though never decorated. They lived some 5,000 or 6,000 years, about the same length of time as the entire historic period. A slow, plodding age by

comparison with later civilizations; but progress in material things was swift if compared with the 100,000 or more years of the Old Stone Age that preceded it. All they did is now taken for granted. They left no sign save these inarticulate stones, upstanding over Europe, ignored witnesses of a forgotten age. Yet modern man would be nothing without their hard-won gains. Civilization would have been impossible without these hidden centuries. With accuracy this New Stone Age can be regarded as the invisible foundation of the modern world.

CHAPTER IX

WHAT PRIMITIVE MAN THOUGHT AND FELT

HERE is most interesting but most difficult ground. It would be delightful to have a clear picture of these ancient hunters and first farmers, to understand how they lived at each stage of their slow evolution, and just when and by what stroke of luck or wit they discovered such marvels as fire and speech and religion. But the sources of knowledge are treacherous and vague, and to overdefine is to pretend to that which is not known.

There are several sources of knowledge:

1. Ancient remains (skulls, graves, stone implements, etc.).

2. Savage tribes as they exist to-day.

3. Children's games of to-day preserving ancient customs.

4. Religious ritual of historic times.

5. The minds of modern men.

The last source is a most treacherous influence and the hardest to correct. However much one tries, one is tempted to explain primitive man by thinking of what one would do under similar conditions. One guesses he discovered fire by striking flint, or dreamed of a dead man and thus invented ghosts and gods, because if we had been there, living as he lived, we should have done just that. The question is of historical imagination and the difficulty of understanding an alien and distant people. In sending one's imagination back yet farther to these first hairy ancestors, one meets a yet harder task. One must use what one knows of one's own mind to interpret these primitive minds, for it is the only mind one possesses. But one must continually remind oneself of the vast gap in experience that lies between.

To compare the mind of the savage to the mind of a child probably misleads more than it helps. For in his emotions the savage was anything but a child. It was in a world rich and warm with loves and hates, fears and joys, that the savage dwelt. Nor was his mind that of a child's, for he possessed a long array of acute outdoor instincts that enabled him, like Mowgli of the "Jungle Book," to sniff danger afar and tread the forest in safety. His whole body was a finer and suppler and stronger thing than any man's to-day. Man dwelt in it, and through it was immersed in the physical world in a fashion which a civilized man can touch only at times—perhaps best when one is swimming on a warm, sunny day and feels a little as if he were part of the sea. Finally, and most important, savage man was more completely a part of his group, his hunting-pack, his tribe, than modern man is part of his city or nation. He had to be, for day and night life and death depended upon skilled group action. So he was less of an individual than modern man, and his ideas and emotions were more group ideas and emotions.

I. LANGUAGE AND FIRE

One other invention preceded these two victories of early man. That was when man learned to walk on his hind legs, thereby freeing his fore paws so that they could become hands. But this was hardly an achievement of man, so far as can be guessed; it was rather the step that made man possible. The growth of language and the discovery of fire were the first great marvels wrought by man himself. Together they made it possible for him to wage a successful war against the mighty animals among whom he dwelt.

Man began to talk soon after he learned to walk on his hind legs, one can guess. But there is no scientific basis for reconstructing these beginnings of speech. Much theorizing was once done in an effort to demonstrate how primitive man must have hit upon his first words; but too much of the argument was based upon the habits of modern minds to make the results of much value. The more the languages of primitive man have been studied, the less support there is for these abstract theories. Thus a favorite thesis was that the earliest words imitated sounds, such as growl and hiss and screech. Language was conceived as beginning in a series of short grunts standing for the simplest ideas, fire, snake, buffalo, etc. But the languages of the most primitive savage show no suggestion whatever of such simple origin. Words based on sound resemblance are no more numerous than in civilized tongues. Nor are there many short words expressing simple ideas. Quite to the contrary, the savage's words have four or five syllables and express the most complicated group of ideas. Also there is a very large vocabulary considering the primitive minds that use them. It is often said that a European peasant uses less than 1,000 words in his lifetime; certainly one can express a vast range of ordinary ideas with that many words of a modern Eu-

ropean language. The benighted savages of Tierra del Fuego have more than 30,000 words.

The savage thinks with the greatest difficulty of general ideas, and he has few words for them. Dog, water, moon, hand, knife, are ideas that any modern child can comprehend. The savage does not use such ideas freely in his mind or speech. If he thinks of a dog it is of a particular dog doing a particular thing, and he has one word that expresses every bit of this detailed picture. In the Huron-Iroquois language *eschoirhon* meant "I-have-been-to-the-water," *setsanha,* "Go-to-the-water," *ondequoha,* "There-is-water-in-the-bucket," *daustantewacharet,* "There-is-water-in-the-pot." We have one word moon, and we put with it an adjective if we want to say full moon, the word full being equally a general word that we can combine with any other general noun. The Fuegians have two names for the full moon, each containing four syllables, and the two have no syllable in common. Building a verb is a fearful and wonderful proceeding for a savage, for it includes all sorts of definite details which we ignore in the general idea of the verb and add as we wish afterward. Thus, if a Ponka Indian wishes to say that "a man has killed a rabbit," he picks out a form of the verb and surrounds it with particles which include all these ideas: that the killer was a man, that he was one man, that he was an animate being, that he was standing, that he killed the rabbit intentionally, that he killed it with an arrow (or however he did it), that the rabbit was one rabbit, that it was an animate being, that it was sitting down (or however the rabbit was at the time). Nouns and pronouns are equally complicated and specific. There are often four numbers, singular and plural, and also forms to express two and three. The Klamath Indians have four forms for "this" and four for "that," indicating just how near or far the object is. For "this" he must choose between "near enough to be touched,"

"close," "upright, before the speaker," and "present, within sight." For "that" he has "visible but far away," "absent," "absent and gone away," and "beyond sight." There is a nominative and accusative for each of these forms. Speaking a savage language requires an excellent memory, and is a far more difficult achievement than speaking a civilized tongue.

This study of language takes one a long way into the savage's mind. He lives and thinks in a world of pictures, and when he talks he talks pictures. Ideas mean little to him and he has few words for general ideas. His language, on the other hand, is amazingly strong in the ability to paint clear, detailed pictures. One can paint a picture well enough in English, but one must do it slowly, adding word after word and sentence after sentence, putting together a succession of separate ideas much as a painter would paint a picture with a long series of brush-strokes. The savage has single words, often five or six syllables long, which flash a whole picture in full detail. Portmanteau words these have been called, because so much is packed into them. Holophrase is the technical name for them. Listening to such words, the savage probably sees a more vivid series of pictures before him than moderns can convey. Man has gained immensely in logic, analysis, generalization, the ability to discover relationships between objects and to reason about them, and modern language is admirably fitted to modern thought. The savage's tongue is equally fitted to his thought. It is at once a superb medium for expressing his direct, vivid contact with the physical world and a hopelessly inadequate medium for progressing into a world of ideas as distinguished from things. The modern anthropologist lays great stress on this difference in language. To develop backward peoples, before all else give them a progressive language, he would contend. Whether the thoughts will follow the language is another question which science cannot answer.

The gulf between savage man and civilized man is nowhere so clearly shown as in this matter of language.

There is one more clue as to the early speech of man which remains to be mentioned. That is the existence of sign-language far and wide among primitive peoples. Talking with hands, arms, shoulders, face is wide-spread. Tribes of North American Indians that cannot exchange a word will spend a whole day talking to each other by signs, recounting their adventures rapidly and fluently. Among certain Australian tribes a widow is forbidden to speak for twelve months after her husband's death. During that time she becomes at home in sign-talk. As a result, the women of the tribes often prefer this form of speech; Messrs. Spencer and Gillen, the great English students of Australian customs, describe a gathering of women in which almost total silence reigned while an animated conversation went on. One widow was discovered who had not spoken, except with her hands, for twenty-five years. It can be taken as general truth that among primitive peoples the sign-language and the spoken word exist side by side, each aiding the other.

It is easy to see how signs might influence the development of speech, and interesting studies have been made along this line. If one hypothesis is more likely than another, one may perhaps look for a theoretical reconstruction of primitive speech in which signs play a large part. Such talk as the first men had may well have been more a matter of hands and face than tongues.

These are the only clues which exist as to primitive speech. It can be guessed that the hunters of the Old Stone Age in Europe developed some such holophrastic speech as survives among corresponding Stone Age savages of to-day —that Cro-Magnon man used portmanteau words as do the less-brilliant savages of to-day. But not a word of these languages has been preserved, and scientists face a doubt

—which makes them view with suspicion all arguments drawn from the study of surviving savages—as to whether the savages of to-day are truly primitive peoples or are degenerate peoples. In the latter case their languages would be the relics of a more cultivated past, and would give no indication whatever of the speech of a truly primitive man experimenting for the first time with connected speech.

Nor is there any more certainty as to Neolithic times. There is no certainty that a word of Neolithic speech has been preserved. The herding and farming ancestors of man who inhabited Europe down to 2000 B. C., the hidden foundation of Western civilization, were overrun by invaders whose language, in one form or another, conquered all Europe. The one vestige of an older tongue that has lived into our time is the Basque tongue spoken by the Basque people of northern Spain and southwestern France. Philologists have countless theories about this strange speech, which resembles no other tongue in the world. Its origin remains a complete mystery. But its general character resembles that of the savage languages, and it can probably be considered as a survival of earlier speech. Conceivably it is a true descendant of the speech of the Neolithic ancestors of Europe, an island of Stone Age language, surviving in the age of aeroplanes. But this is only one hypothesis among many. Only the philologists, who study the evolution of words, can solve this interesting puzzle, and they are still far from a conclusion.

As for what words the first man uttered in that dim past of the race, hundreds of thousands of years ago, when a stone hatchet was an undreamed-of marvel of the distant future, science is even more completely in the dark. It is of speech developed to a highly complicated state by tens of thousands of years of slow evolution that savage language of to-day gives a glimpse. Peering back into the remoter mists, one can only feel sure of the immense remoteness of

that hour when a hairy being, standing upright, partly with his hand, partly with his tongue, uttered that first and greatest of human inventions, a word.

The importance of fire to primitive man, surrounded by great carnivora, pursued by advancing glaciers, is clear. There is proof that the later Stone Age men made fire, and it can be taken as probable that their ancestors possessed this blessing for thousands of years before.

How man first hit upon fire has been much debated, but there is no way of reaching a conclusion. Very possibly it may have been discovered from different sources in different parts of the world. The lava of a volcano or a tree set on fire by lightning are possible sources. As soon as man began to make flint tools and happened to use an iron-bearing stone, he struck sparks. But what might seem to modern minds and customs the likely source of fire may not, in fact, have been the first source of fire to primitive man.

It has recently been suggested by a psychologist, Doctor Jung, of Switzerland, that savage rites may have accidentally made the first fire by boring one stick into another, as in the fire-drill used by Boy Scouts to-day. He based his suggestion on a study of ancient myths. Primitive man realized fully how precious fire was to him, and the fire-bringer is one of the earliest gods. In the Tonga Islands of the South Pacific, the god of fire is the god of earthquakes, as might be expected in a volcanic region. By a legend of North American Indians the great buffalo, galloping across the plains, struck sparks with his hoofs which set the prairie afire. For the Greeks, the fire-bringer was Prometheus, one of the greatest and most sacred of their gods.

The evidence yielded by such myths is unreliable and must be carefully checked. They, at any rate, give interesting proof of the vast importance of fire to early man. The blazing torch with which he first faced and drove back from

his cave a terror-stricken animal might serve well as a symbol of the whole story of man's amazing triumph over the physical world.

2. SOCIAL ORGANIZATION

There is no direct knowledge of how primitive man united in groups, and for information scientists must again fall back upon the customs of savages still living. It might seem easy to catch a tribe of Australian natives who were living in the Stone Age, and by studying their ways infer how Neanderthal man or Cro-Magnon man organized his groups or tribes. But such evidence has to be used with large reserves. At the start comes the difficulty of finding out how a given tribe of savages does live. Their ideas are not our ideas; the whole substance of their daily existence is so far alien to ours that to pass beyond the most superficial facts requires long and sympathetic study by experts. Much of the evidence used by early anthropologists is now seen to be misleading, because it was gathered by casual travellers who made no attempt to comprehend the savage's point of view. It has been necessary to discard a number of supposed facts together with the theories built upon them. For a second point, as already noted, one can never be sure that a tribe under observation is not a degenerate remnant of a once higher civilization; in which case its social organization would offer no parallel whatever to that of a truly primitive people. It is only by comparing the customs of a large number of savage tribes that even a tentative hypothesis as to how early man organized his groups can be found.

The most primitive savages of modern times are already in the Stone Age. There is therefore no evidence whatever as to how man lived in that long night before the dawn of Paleolithic man. It can be guessed that, like his forebears,

the animals, he hunted in packs and that, also like the animals, family ties helped in forming the pack. At the head of the pack one can conceive the strongest man acting as leader until, weakened by age, he was killed by a new leader. Fire had been discovered by Paleolithic times, so at some unknown point in these tens of thousands of years one may picture a pack of men, women, and children, mostly related to one another, grouped about that terror of all animals, a blazing fire. This was before the discovery of stone weapons, and it can be supposed that man then used a wooden club. But all this is sheer surmise. It is tempting to fill in details from what is known of wolf-packs or monkey troops. But one must realize what one is doing. It is impossible to make even an intelligent guess as to how large these primitive packs were or how completely the family was the pack, let alone decide such details as to whether primitive man had one wife or many, and whether the family was more or less permanent.

When primitive man does actually emerge for us in the Old Stone Age—as tentatively reconstructed from a study of existing savages—he is already far removed from a mere hunting-pack. Indeed, the whole object of the hunting-pack, the getting of food, has been subordinated to a totally different affair. His group is not a food-group at all but a kinship-group, a very complicated and amazing family. Before examining this peculiar organization of savages, there should be noted the few rays of light which its existence casts backward into the earlier age of darkness. In view of it one can feel fairly confident that kinship, especially that of mother to child and of man and woman in some sort of primitive marriage, is one of the oldest facts in the human story. Men and women were hungry and in peril, and therefore they banded together to hunt and to kill; but equally they lived together and had children, and family ties shared with hunger the task of first organizing

man in groups. That much of surmise as to early man rests upon solid probability.

The modern family is such a small and natural thing that it is hard to understand the artificial kinship system of savages. Here (as in the case of language) progress has been toward simplification, not complexity. Nobody knows why these complicated systems came to be, although anthropologists have waged war about the problem for a generation. Leaving these debatable causes to one side, here is a rough idea of what a fairly well-advanced savage tribe is like. There is a chief and a council of chiefs at the head. Thus far there is simply the hunting-pack grown to several score, or even, in the case of North American Indians, several hundred members. But then comes the odd fact; the tribe is split from end to end into clans, usually two, sometimes more, and it is as a member of a clan that each savage first of all lives, and it is to his clan that he feels his first loyalty.

A striking feature of some clans is a totem, an animal or a plant, which is its sacred emblem and by which it is named. The Boy Scouts name their patrols after animals in much the same fashion. But the totem of the savage means far more in his life. Often it is sacred to him; if it is an animal, he may not kill or eat it; and it plays a conspicuous part in his religion. In every case it unites the members by a bond, in a brotherhood, which moderns have difficulty in understanding. Secret societies and fraternities offer only a pale imitation of it. The Australian natives talk of being "all-one-flesh" in a clan because they are "all-one-flesh" with the totem.

A savage is born into a clan. Every savage child at birth inherits the clan either of his mother or his father. The former kind of inheritance is called mother-right, the latter father-right. It was for long argued that mother-right was earlier, and the word "matriarchate" was coined

to describe a supposed condition in which the mothers of a tribe more or less ruled it. This conception has now been abandoned. The male seems generally to have been the more powerful in savage tribes; and as between mother-right and father-right, while there is some evidence that the former is more primitive, it is not conclusive. All that is known with certainty is that existing savage tribes follow either one rule or the other, and that when, issuing from savagery, they reach the stage of herding and farming, father-right and the patriarchal system usually prevail.

One more strange point remains to be noted. Generally speaking, the members of a clan are not permitted to marry within their clan. "Exogamy," meaning "marriage without," is the name given to this peculiar rule. Practically this rule may work out in a beneficent way, for it prevents close intermarriage between near relatives and compels what stock-breeders call cross-breeding. Perhaps this utility may have been at the bottom of the whole totem division. But there is no clear evidence, and the anthropologists are far from agreed.

The system of totem and exogamy is infinite in variety and complexity. Sometimes, under mother-right, the father simply visited the mother from time to time, and both lived on as before with their separate clans. Sometimes, under father-right, the mother left her tribe and came to live with her husband, and there was therefore something like the modern family within the clan. One needs to remember only the broadest outlines. Perhaps the chief point to realize is that among savages the family as moderns know it (a father, a mother, and their children) was swallowed up in the larger unit of the clan. A boy born of a Wolf father (in a tribe where father-right controlled) was first of all a brother of all the other Wolf men (whether actually related to them or not). His father and mother had much to do with his bringing up, but the clan had more. His greatest loyalty was to the totem and the clan.

It is amazing to find that savage man has organized himself in this highly artificial and complex manner. His whole life is similarly surrounded and marked out by custom. It is hard to find anything exactly like modern laws in savage tribes, for a law implies punishment for its breach, and the customs of a savage are seldom broken. What is forbidden is taboo, which is to say that the rules of the savage are sacred, and violation of them brings down not so much punishment as a terrible and unknown fate. That fate, to be sure, usually includes sudden death at the hands of the community, horror-stricken that a taboo should have been broken. But this is a detail beside the supernatural terror involved. The practical result is that the savage is more law-abiding than modern man. It seldom even occurs to him to break his customs, so completely are they part of his nature.

That is the good side of this way of life. The bad side is that individual freedom is reduced to a minimum and that progress is difficult to achieve. The Dyaks of Borneo, for example, are a mild, good-natured race; yet their custom demands head-hunting, and head-hunting they still go. One need not jeer too loudly at this rigidity of savage custom, for modern man often shows much the same spirit. Moderns frequently cling to customs long after they have lost all purpose or use.

It is hard to say how much of all this can be safely applied to primitive man. There returns the difficult question of how far these savage customs are the work of truly primitive man and how far the work of degenerate man. Probably most anthropologists feel that there is here represented a genuine stage in human progress, obviously not of earliest man, but of man far along in the Old Stone Age. But the sceptic who doubts is hard to answer. One can feel at least convinced that the roots of modern law and custom and human relations are extremely ancient, and that man, while

a hunter and a savage, was part of a complicated society, hedged round by untold rules and customs.

3. THE SUPERNATURAL

In central Australia there is a long, dry season in place of winter and a short summer season of torrents. Nothing grows in the period of drought. When the rains fall, the dry steppes blossom suddenly with plants, and birds and frogs and lizards appear as if from nowhere. The Australian native of this region goes through strange performances each year just before the rain is due. He draws the figure of the emu on the ground in his own blood. Then he puts on feathers of this great ostrichlike bird and gazes about vacantly, imitating its stupid look. Also he imitates the birth of a caterpillar, the witchetty grub, from its chrysalis. He builds a large chrysalis of branches and drags himself through it. The emu clan perform the emu rites, the witchetty-grub clan the grub rites. The clan that has the kangaroo for a totem go through even more elaborate rites. The kangaroo men go to a lonely rock face, where first they paint stripes of red ochre and white gypsum (like the red fur and white bones of the kangaroo). Then a chosen few mount to a ledge some twenty feet from the ground, open veins in their arms, and let their blood drip down upon the rock. Meanwhile, below, the other men sing chants about the kangaroos to come. After this ceremony is finished, they hunt till they kill a kangaroo, which they divide and eat. (It is only at this special ceremony that the kangaroo men can eat their totem animal freely.) Afterward, they smear their bodies with red and white stripes as they smeared the rock.

This seems savage nonsense. Yet the modern world is not many generations removed from similar rites. The May-pole is to-day the centre of children's play. In Eng-

land, as recently as the days of Queen Elizabeth, it was a festival in which whole villages took part. There were scores of oxen, decked with flowers, drawing a living tree, and hundreds of men, women, and children, dancing and feasting, among them the Queen of the May. In Bavaria, May-day is still celebrated in this fashion. In ancient Greece there was an April festival that centred around a garlanded bull and a procession that ended in the killing of the bull as a sacrifice to Dionysus, the god of youth and springtime. These spring ceremonies belong to a period later than savagery, when man had begun to till the soil. His interest is not in kangaroos but in bulls and the spring planting. But the resemblance is plain.

There is more solemnity in the Greek festival and more fun in the English festival—which is doubtless a survival of earlier and more solemn rites. What the central Australian is thinking of when he turns emu or grub or sings about the kangaroo, it is most difficult to determine. No two festivals celebrating spring are the same, nor is it always spring that is celebrated. Autumn festivals, like the American Thanksgiving Day, are common. The Eskimos are chiefly concerned about their arctic winter, and every autumn they divide into two groups, called Ptarmigans and Ducks, and have a tug-of-war with a sealskin rope. If the Ducks win, there is hope of fair weather; if the Ptarmigans, bad. The tug-of-war, like the May-pole, seems generally to be a survival from early festivals related to the seasons.

In all these ceremonies dancing, or at any rate acting as in a children's game, plays a large part. As a matter of fact, dancing is a common form of expression among savages. War-dances and rain-dances are familiar illustrations among the North American Indians. The savage dances not for amusement but always with a solemn purpose. He is face to face with a danger, he hopes and longs

for something, and he performs these rites, seasonal or otherwise.

Perhaps the most elaborate rites of all take place when the boy is old enough to play his part among the men of his clan and he undergoes the ceremony of initiation. There are initiation ceremonies to-day, for college fraternities and secret societies; they are more or less solemn, and they very often involve some test that is thoroughly disagreeable to the one initiated. In this last respect they resemble the savage initiation. The boy of a savage clan may have a tooth knocked out and be obliged to fast for weeks alone in the jungle and be subjected to all kinds of unearthly, nerve-racking tests. The savage initiation is highly solemn and important. The boy learns the sacred customs of his clan under conditions calculated to sear them in his memory.

Oddly enough, a frequent accompaniment of the savage boy's initiation has become a modern boy's toy. That is the bull-roarer. It is a short, flat stick, an inch or two wide and eight or ten inches long. Sometimes the edges are notched, sometimes plain. A string is tied through a hole in one end. When whirled around the head at the end of the string, it gives out a strange, unearthly noise a little like the wind or distant thunder, or the deep note of an organ. It is a common toy of boys in England, sometimes called a hummer or a buzzer. The medicine-men of the Apache Indians were still using it a few years ago as part of their rain-spell. It was used in ancient Greece in the spring rites to Dionysus. It has been traced around the world and discovered upon every continent. In southeastern Australia it furnishes the voice of the god at the initiation ceremonies. It is against this background of mysterious, throbbing sound that the savage boy takes up his solemn duties to his clan.

It is difficult to say exactly what the savage is aiming at in these various ceremonies. There are two simple ex-

planations which can be given and which are summed up in the words magic and religion. These words have been purposely avoided thus far, and at the head of this section is the word "supernatural." Even that term is misleading, for moderns draw a sharp line between natural happenings that they can explain, and supernatural that they cannot, and place few things on the supernatural side; whereas the savage probably drew no such sharp line, and felt a large supernatural factor in most things that happened. But the word is at least less misleading than magic or religion. For the former means a definite thing, the use of supernatural forces generally evil; and the latter signifies belief in a god or gods, and implies acts of worship. To use either of these words injects wholly modern conceptions into primitive man and begs the question under consideration.

This is in effect a warning against two theories which have been widely debated for a generation. The one was put forward by a great English anthropologist, James G. Frazer, author of "The Golden Bough," a famous history of primitive custom. It assumes that practically all of these early rites are magic, and that magic generally preceded religion. "Sympathetic magic" was the precise term used by Frazer. The savage belief that one can kill his enemy by destroying an image of him illustrates the idea stressed —there was thought to be a "sympathy" between the image and the real person which worked the magic. The second theory was the hypothesis of E. B. Tylor, also an Englishman, the pioneer of all modern anthropology. He suggested that the early ideas of man about supernatural things started from dreams and the fear of ghosts, and caused him to think of everything about him, sky, trees, animals, what-not, as inhabited by spirits—to be haunted, so to speak. "Animism" is the name given to this theory, meaning that it is a theory of spirits.

Both of these hypotheses were the suggestions of able minds and both have served to direct and clarify thought about a difficult question. Both undoubtedly point to and explain certain forms of primitive custom. But the recent tendency of anthropologists is to regard both theories as misleading when broadly applied to the whole field, for the reason that they involve reading into the savage mind modern notions. The current tendency is to consider that the time is not ripe for attempting a definite theory of the origins of man's attitude toward the supernatural. Much more sympathetic study of savage man is necessary before scientists can be sure what is really in his mind when he does the strange things described.

But leaving aside definite notions of magic and religion, one can accept certain broad considerations as to the general type of savage thought and emotion. First, comes the fact that primitive man is above all a part of his group. The doings described above are not individual doings; they are rites done on behalf of the community and by the community. The magic theory and the animistic theory both look to the individual mind for origins of these customs, whereas it is more likely that they are the product of some kind of joint action. At any rate, one must bear constantly in mind this pooling of ideas and emotions and not stress individual imagination at the expense of community custom.

Second stands the undoubted fact that many of these practices come at danger-points in the savage's life, when he is face to face with grave perils of starvation or death, and that they are solemn rites which in some fashion serve to help the whole tribe over these spots. The savage's unknown is a far greater part of the universe than is modern man's. It is difficult to put oneself in his place, so much of nature is now clear and so largely have the risks of starvation and death at the hands of wild animals been eliminated. It is not only a group of undeveloped human beings

that must be pictured, but such a group hourly, daily, year after year, fighting for their lives against a world that stalked them by night and loomed threateningly by day. This is to say that such customs as those of the central Australians did for the savage much that religion and worship do for man to-day. They were solemn acts of ritual that helped him to face the unknown. In this sense, whether they prove to fall within modern conception of religion or not, they may fairly be said to have served as his religion.

It must be accepted also that the savage early used other ceremonies which suggest much more closely modern notions of magic—the enemy-killing spells which Frazer described, for example. At any rate, they served much the same selfish, individual purpose for which later magic was generally used. No clear line of division is possible, however. One can only feel fairly confident that in the solemn community rites, designed for the good of the entire tribe, there is something that appears to be a forerunner of religion not magic.

Third, there is a very general idea involved in these primitive customs summed up in the Polynesian word "mana" and the Huron Indian's "orenda." Mana is the power of sacred things—the wonder-working quality of a chief or a bull-roarer or anything that a tribe considers sacred. It can pass into oneself or into one's spear-thrower, and this getting of mana is one of the great objects of such customs. It dwells above all else in the totem of the tribe. But the savage also feels it in the sun, the flash of lightning, the roll of thunder, in everything mighty and mysterious. Is this mana a soul or spirit, or is it a force, or is it simply a mysterious something? One can see how easy it is for a modern observer to read into such a belief the modern idea of a god. But probably, for the most primitive savages, mana is nothing so definite as a god or a spirit. Perhaps one can conceive the savage's approach to mana by

thinking of one's own first vague sense of awe before the Falls of Niagara or a great storm at sea; yet the instant one reflects one is thousands of years away from the savage, and coloring emotions and ideas with thoughts he never had. When a primitive man succeeded in possessing mana himself, he probably felt a sense of power somewhat akin to that created in modern man by a stimulant.

Until more progress is made by anthropologists, these early customs must be left in this vague and unsatisfactory state. There is no question that on leaving the most primitive peoples there soon appear clear ideas of spirits and gods. Most savages surviving to-day—the tribe of southeastern Australia, cited above, and the North American Indians, for example—have reached this stage. The mythology of ancient Greece illustrates it at its culmination after man had ceased to be a savage and a hunter and had begun to herd his flocks and till the soil. How they developed from these hazy beginnings is still one of the endless puzzles of anthropology. The Tylor theory of animism assumes an early tendency to personify sun, tree, and waterfall resulting from dreams of the dead and a belief in ghosts. The Old Man of the Tribe, feared in his life and feared even more when dead, developed into the first god in this view. The Frazer theory of magic would derive the idea of a god from the practice of magic spells and sacrifices. In the study of Greek festivals Miss Jane E. Harrison has traced the idea of a god of youth and springtime first to the bull that was sacrificed and later to the yearly acting out of the season by a chosen youth. One need not attempt to remember these different speculations, for they are still unproven. The most important facts to realize are that man early felt the need of such aid as he later found in religion, and elaborately and solemnly besought such forces as he knew.

There needs to be noted, finally, the large part which

primitive art played in these ceremonies. Dancing and painting are both prominent. Perhaps the bull-roarer can be called the first music. Miss Harrison has endeavored to trace the development of Greek tragedy, one of the greatest of all artistic achievements, back to those same spring ceremonies of Dionysus. One recalls the rock-paintings of Cro-Magnon man, a world away from the rock-paintings of the central Australians in space and in artistic ability. That they played a part in somewhat similar rites is altogether probable. There are just as many theories as to the origin of art as there are of the origin of religion. The seeking of pleasure and joy in beautiful things has very largely driven the religious motive into the background in modern times. But whether religion and art originated together or separately, one can be sure of their close connection through long ages. They were bound together in Egypt, in Greece, in the Middle Ages. It is interesting to note their close kinship here in the farthest mists of time.

CHAPTER X

THE DAWN OF CIVILIZATION

After 100,000 years of savagery and 10,000 years of barbarism the beginnings of writing and of civilization appeared at the eastern end of the Mediterranean. The three earliest civilizations now known, the Egyptian, the Babylonian, and (a little later) the Ægean, developed close to the point at which the three continents, Africa, Asia, and Europe, are united. Oddly enough, also, of the three, one developed in each continent.*

Here is one of the most interesting problems of human progress. How did it happen that these early victories of man were gained here and by these particular peoples?

* It must be stressed here at the outset that only a small portion of the world has been studied by archæologists and that what is now known of the dawn of civilization may be radically altered in the future. The beginnings are here described on the basis of present knowledge. But it must constantly be remembered that both India and China possessed early civilizations and that future research may place their origins by the side of the eastern Mediterranean achievement. Already the Indian story has been pushed back 5,000 years. The Chinese material has scarcely been scratched. There are three great rivers in India and two in China, all in favoring climates. It may well prove that civilization began in the deltas of all of these warm rivers as far back as 10,000 B. C. The race of the archæologists is on, and the most stirring records may remain to be written.

The debate has centred around the two factors of geography and race. Did a favorable climate and soil and seclusion make Egypt? Or was there a touch of genius in the ancient Egyptian blood (the result of a fortunate crossing of races or perhaps simply of slow evolution within a pure breed) that lifted the Egyptian mind above the other peoples of Africa? This question is essentially the one which is often debated about individuals instead of nations. There the dispute has centred about the two words, environment and heredity, which point to the same two factors. Does a youth grow into a great and successful man because he is born in a well-to-do family, is well brought up and educated, or because there was born in him a peculiar ability and will to be great?

It would settle many doubtful questions if one could plunge for one factor or the other. But as has been abundantly demonstrated, the world is not as simple as that; at any rate, man's knowledge of it is too small as yet to arrive at any such simple conclusions, however convenient it would be to do so. "Nothing is simple" is perhaps rather a discouraging motto for the student of history, but it errs on the safe side and will keep him from many snap judgments and misleading theories. As in the case of boys and girls, one is obliged to say that it is very hard to decide, that environment seems to have much to do with forming character but that inborn ability also counts greatly, so in the case of nations scientists cannot yet define what part geography and what part race plays in forming them. One must for the present compromise and grant a probable share to each.

There is a new and interesting science of human geography that has grown up in the last few years. It approaches such problems from the geographical point of view. It is seeking to find out how far heat, cold, storms, soil, rivers, and mountains, and every other physical feature of a land, affect the character of its people. As with every

new science, there is a tendency at the moment to exaggerate the forces which it has discovered. There is perhaps a little too much said to-day of geography and not enough of race. But one need not be led astray by this enthusiasm of a new science; one can benefit by its discoveries without laying too much emphasis on them.

For instance, the two earliest civilizations now known were clearly the products of a peculiar geography. Egypt and Babylon were both miraculously fertile river-bottoms, the easiest of all places in which a large number of men could grow food for themselves. With the aid of simple irrigation the Egyptian and the Babylonian became almost independent of season and drought. Both were also in a measure isolated and protected by nature, Egypt more completely than Babylon, as the fate of the latter proved. As for the third civilization, it centred about the island of Crete, to the south of Greece, and it spread throughout the islands of the Ægean as well as to that part of the mainland where several thousand years later developed Sparta. This gave a different home from the river-bottoms of Egypt and Babylon; there was great fertility on these sunny isles of Greece, and an even greater security; just why civilization should have ripened early here is not clear. The geographical explanation is nowhere the whole story.

There are other river-bottoms in the world not less fertile than in Egypt or in Babylon. There are other islands as sunny as those of the Ægean. There is thus plainly a point at which geography ceases to explain and one must fall back upon race. Geography can absolutely prevent progress beyond a certain point by giving a climate too cold, as with the Esquimaux, or too hot, as in Java. It can by its changes, a prolonged drought, for example, drive men out of their homes and across continents in great migrations. It is thus a great mixer of humanity. It can limit development within certain lines by the opportunities which

it offers, making a people chiefly farmers, shepherds, sailors, mountaineers, or traders, manufacturers, and other city folk. But just how far a people will take advantage of its opportunities it is quite beyond geography to say. For an answer, one must consider the difficult question of race.

Why had these three separate races, of three separate continents, the gift to learn writing and civilization before any other people? The age is too remote for us even to be sure of the stock from which they sprang. But if we were sure, anthropology as yet offers no explanation of the greatness of a people, any more than it can tell us why Plato and Lincoln became great men. The paleontologist is beginning to see the setting for such events as the development of amphibians or the decline of the giant reptiles in certain great changes in the face of the world; but even in these simpler steps, as has been remarked, there is no explanation of the ultimate cause of evolution, of why living things grow and advance. Still less, in the complicated evolution of man, his body, his mind, his institutions, is there any explanation ready. Scientists have scarcely begun to understand the conditions which are favorable to greatness.

About the only clue which exists is that rather picturesquely shown by the position of these three civilizations of Egypt, Babylon, and Crete. The region in which three great continents touch would be the point at which there would be the greatest possibility of minglings of diverse types, of cross-breeds. It seems likely that a great nation is the product of a lucky mixture of races. Yet, at once, one must hedge the statement about with limitations. Science has not the faintest idea what mixtures will produce great races; it is not even sure what mixtures will produce clearly degenerate breeds, though there is some evidence that minglings between the great divisions of men (between red man and white, between white and yellow, and

between white and black) tend to go down-hill. And, of course, once a great race is produced, it must not be swamped by the wrong blood. That is to say, there must be a mixture of the right races; but scientists do not know what the right races are; and at the right point, which it is impossible to fix, there must be no more mingling. A recipe for mixing a cake in such terms would not be of much value. The truth is that anthropology can help very little as yet in solving the great racial problems. Man will have to rely upon his old racial instincts, as in so many other matters, until the scientists progress much farther than they have. His instincts may some day prove to be wrong and need to be modified, but until that day comes they represent the best wisdom that he has.

The story begins with Egypt because she was unquestionably the greatest of the three civilizations and must be ranked the equal of Babylon in antiquity. At least, most archæologists now consider the two as roughly contemporaneous. The earlier view—which will be found in histories not recently written or revised—placed the beginnings of Babylon a thousand years or more before Egypt. This earlier date for Babylon is now generally held to have been an error, and the tendency is to regard Egypt as slightly the older. One must not take any of these first dates too seriously. A large element of uncertainty is necessarily involved in calculating years from early inscriptions and making them accord with the vague statements of early historians. No two archæologists agree at any point. In view of the conflicts of opinion still existing, the simplest course is to ignore specific dates and view the two civilizations in a broad way as starting probably not far apart.

From 5000 to 3000 B. C. both Egypt and Babylon passed from stone to bronze, and at the same time slowly learned the far more difficult and important feat of writing. History begins somewhere in those millennia, but, as in the

case of all transitions, no exact year can be fixed. It will be sufficient to remember that by 3000 B. C. written records became fairly clear and certain alike in Egypt and in Babylon. In Egypt there are names of kings in picture-writing in the centuries preceding, but before 3000 B. C. one passes into a region of estimates of time not so different from the estimates of geologic time. For the purposes of simplification we can take the round figure of 5,000 years as roughly covering historic time. A few hundred years might be added to include these earlier centuries, when scientists know that the Egyptians and Babylonians were struggling with the problem of writing, and do not know much else.

The dates of Crete are even more hazy, for the language of its inscriptions has not yet been deciphered. Its civilization is plainly later than Egypt's, by 500 years or more.

These three civilizations are the oldest as yet known anywhere in the world. According to existing data they antedate the beginnings of civilization in China and in India by a considerable period of time. But one must not feel that the last word has been said on this point. The civilization that centred in Crete and that we call Ægean was utterly unknown fifty years ago. Its discovery is the great romance of modern archæology. Recent excavations in India suggest that here may be a close rival of Egypt and Babylon. Perhaps it is unlikely that we shall find other civilizations as old and as great. But, remembering that all North Africa was once fertile and inhabited, and that neither Africa nor Asia nor the Americas have been thoroughly explored, minds must be kept open. As the first dawn rises over the eastern Mediterranean, it is well to remember that it is a period of dim lights and unexplored shadows.

I. EGYPT, DAUGHTER OF THE NILE

It is of the great pyramids that one first thinks when the name of Egypt is mentioned. They are good symbols to

bring up what was conspicuously vast in this civilization, the endless gangs of men hauling at ropes to draw the huge blocks of stone into place, the kings and queens living and dying in splendor, the colossal works of art, the all-powerful religion that swayed rulers and people alike and inspired these gigantic tombs. If the sphinx is added, there is included that element of mystery that has always surrounded this strange people. Some of that mystery has been removed by the archæologists. The great sphinx, it is now known, is not the statue of a woman with a mysterious smile, as was long supposed, but merely the weather-beaten portrait of a king. A plenty of mystery remains.

But it is not for her great monuments that Egypt deserves most to be remembered. They are rather like the skeletons of the giant reptiles, relics of a colossal development in a direction that the future ignored and forgot, sign-posts down a blind alley. It is first of all for her mastery of writing that Egypt ranks in the great succession. The inconspicuous discovery endured, the pomp and grandeur faded from sight. It is not certain that Egyptian writing contributed much to the general advance in writing. The ancestry of the alphabet is still in doubt, rather more so than less of late owing to recent discoveries. It is certain that it came from the Greek, and it is probable that the Greek alphabet came from Phœnicia. There is some ground for believing that the Egyptian writing contributed some characters to the Phœnicians; but the whole question of sources for the Phœnician alphabet is hotly contested. It may be that even this labor of the Egyptians in painfully learning how to write was chiefly for themselves alone and counted little in the general stream of progress. The achievement was none the less remarkable and deserves study.

Children draw pictures before they learn to write, and so do primitive peoples. The first kind of writing was

picture-writing. This is known from such savages as the North American Indians, and it is known from the records of Egypt, where the whole development is preserved. There were four stages in the full development of writing:

1. Picture-records.
2. Picture-words.
3. Picture-syllables.
4. Alphabet.

Man still uses picture-writing in its original form to-day when he wishes to attract attention. Advertisements are full of this primitive method. The dog listening to his master's voice in the talking-machine tells a story in picture form. The Indian chief uses the same method of recording a story when he draws a picture showing himself killing his enemy. In both cases no precise words are indicated; the idea comes directly, each observer putting it in his own words. Strictly speaking, this was not writing at all, for writing did not begin until some method was found for setting down definite words.

But the first stage imperceptibly shaded into the second. Gradually certain pictures came to mean always the same words and to be drawn always in the same way, and instead of being arranged in a group were strung along as in a sentence. It is in lists of early Egyptian kings that these first word-pictures have come down to us—Snake-Lord, Hawk-Lord, and so on. Long before 3000 B. C. the picture of a hawk was fixed in Egyptian writing and never changed thereafter. North American Indians recorded the names of their chiefs, Sitting Bull, Big Crow, etc., in the same way. There is also a year list of the Dakota Indians, called a winter count. The years seem to have been named by primitive man before they were numbered—the Year of the Great Drought, or the Year of the Smallpox, or of whatever else happened to be its great event. It is easy to represent these years by pictures, by

the body of a dead Indian marked with spots for the smallpox year and so on. This kind of writing, in which each word is always represented by the same picture, can be carried a long way. Sorrow can be shown as a figure dropping tears; the picture can be simplified to an eye and a tear. (The Ojibwa Indians and the Egyptians hit upon much the same picture here.) Theoretically there is no reason why an extensive written language could not be developed in these conventionalized word-pictures. As a matter of fact, it would be so complicated that thousands of different pictures would be needed, and there are so many words which it is difficult or impossible to picture that only a primitive people could be satisfied with it. It is a fair index of the degree of progress achieved by the North American Indians to note that they never developed beyond this second stage of picture-words.

In the next stage, writing used the familiar principle of a rebus. The simple words were still represented by one picture. The longer words, the ones difficult to picture, were shown by a series of pictures, each giving a syllable. A picture of an "eye" and a "sickle" might represent "icicle," for example. Acting a charade you use this exact method. Much more than the mere division of a word into a series of pictures was involved here. For the first time sound determined the picture, not the sense. Here was a great invention, the germ of the whole alphabetic system of writing. The Egyptians used it in writing the names of their kings well before 3000 B. C.

There remained only the fourth stage. This step, too, has been traced in Egypt. The picture gradually lost all resemblance to the original object, was simplified into a few strokes, and was used not for a syllable but for just one sound in a syllable. The first syllable "i" of icicle is a single sound in itself, and if a simplified "eye" were used to represent it—a circle with a dot in it—the last two stages

would be taken in a single step. Progress was not so swift. As a matter of fact, the Egyptians never invented letters for the vowel sounds. They omitted the vowels when they wrote. But if one conceives of a "sickle" being used to represent the two last syllables of "icicle," and then gradually coming to be used merely for the sound of "s" or "k," there is a rough parallel to the gradual shifting and simplification by which the Egyptians developed their alphabet. For two actual illustrations: the word for "mouth" in Egyptian began with "r"; the name of a cobra was "z-t" (the vowel is not known), and the picture of a snake came to stand for "z." By 3400 B. C. the Egyptians had an alphabet of twenty-four letters, all consonants. This was some 2,500 years before the invention of an alphabet by any other known people.

Here came the amazing fact in this people's development. They made very little use of their alphabet and remained chiefly in the preceding stages of word and syllable signs. With this final, invaluable invention ready to hand by 3400 B. C., they took no advantage from it for 3,000 years. They had the vast ingenuity to develop an alphabet but not the wisdom to use it. To understand this failure will go far toward understanding the nature of this extraordinary people.

Our name for Egyptian writing offers a clue. It is "hieroglyphics," which is Greek for "sacred carvings." In its origin Egyptian writing was the work of priests; it was used for religious purposes, inscriptions upon tombs, and so forth. It was thus the sacred property of a small caste. There was no point in making it easier to write or read. There was, to the contrary, every reason for keeping it something difficult and mysterious. Moderns are used to reading with an alphabet, and with the aid of it they learn to read when they are small children. It is hard to realize how difficult Egyptian hieroglyphics were to make

and read. There were 600 syllable pictures in it, all different. It is like an alphabet of not 26 letters, but 600 to be memorized. To learn such a list of signs required years of study, and writing was done by a special class of experts called scribes.

Even when writing came to be used for business purposes, the Egyptians held to their old syllabic system and ignored the alphabet. They merely simplified the signs and wrote them in a running hand, differing from the hieroglyphics as modern handwriting differs from print. They had early developed paper, ink, and pen. The word paper comes from the Egyptian word papyrus, which was a paper made from a strip of reed pith pounded flat and reinforced by a similar strip laid crosswise. The two were pounded together with the aid of the gum of the pith and thus a tough convenient paper was achieved. Soot with vegetable gum and water made good ink, and a sharpened reed served as pen. Instead of binding small sheets in a book, the Egyptians pasted one sheet below another, thus making a long, narrow strip. This they rolled up for convenience, and a lengthy writing had the appearance of a modern roll of wall-paper. Such a manuscript might be forty or fifty feet long. Thus on the mechanical side the writing equipment of the Egyptians was complete 5,000 years ago. Yet they never took advantage of their most wonderful tool, the alphabet.

But it is not a complete explanation of such conservatism to say that the Egyptian scribes wanted to keep writing a mystery. It is an easy excuse to make for a people that has failed to achieve, to say that some class of despots, kings or priests or nobles, held them under. The underlying cause must be sought at a deeper level. Plainly the Egyptian people were fundamentally conservative. They clung to their ancient customs because such was their nature.

It is perhaps this quality which makes them seem alien

to the modern Western world and more akin to the East. As a matter of coincidence, their system of writing offers an odd parallel to that of the Chinese. Like the Egyptian, the Chinese became wedded to the syllabic system of writing. They have clung to it to this day. That is why reading in China is confined to a small cultured class. Only an inborn conservatism can explain this living with the past. A difficult system of writing and reading reacts upon the mind and may hamper freedom of thought; but it can equally be argued that freedom of the mind, the great gift of the Greeks to the Western world and the underlying cause of progress, is the essential quality, and a failure to develop adequate machinery of expression is only an outward symbol of an inward lack.

No ancient people left such full records of themselves, amazingly preserved in the dry air and sand of the desert; yet no people are so difficult to classify. They are classed as related to the Semitic peoples—the Arabs and the Jews—in some books. Their language and their religion certainly possessed a Semitic element, and there is likelihood that at some early day there was an influx of Semitic blood from the East. But the modern anthropologists who put their faith in skull shapes look in another direction. They contend that the ancient Egyptian—who, by the way, has survived in many modern Egyptians utterly unchanged in appearance after 5,000 years—is merely one branch of a great race that more or less surrounded the Mediterranean Sea. He belongs, in their view, with a breed of dark, narrow-headed people widely spread in Neolithic time, penetrating northward along the mild Gulf Stream through France to England and Scotland. Thus Egypt would be the flowering of that first foundation stock of Neolithic man upon which all the later West was grafted.

But this theory is still far from established. What can be accepted from it with considerable certainty is the inde-

pendent origin of Egypt and its civilization. Time was when Egypt was viewed as the child of Semites coming from Arabia, who in turn had learned their culture in Babylon. This rested upon the supposed earlier origin of Babylon. With the discovery that Egyptian culture was at least as old as Babylonian came the newer conception of Egypt as an independent civilization, genuinely African in its origin and development. There are unmistakable evidences that the ancient Egyptians were the product of the crossing of several breeds of man, as might be expected from its position. It is safe to accept the culture of Egypt as related in the three directions: southward to Africa and the negro, eastward to Babylonia and the Semite, northward to Greece and all the Mediterranean peoples. If one views these elements as fused in one nation as distinctive and peculiar as any the world has known, one will come as close to the essence of this strange race as is now possible.

It is only a detail, perhaps, but in their way of dressing the Egyptians were utterly unlike their Asiatic neighbors. The men wore one garment of white, a sort of waist-cloth or kilt. Above the waist they went naked. They shaved not only their faces but their skulls, and wore the elaborate wigs to be seen on their statues. Even the women wore wigs, though they did not as a rule shave their heads. The boys and girls showed a single plaited lock on the side of the head; the rest of the skull was shaved. A spotlessly clean people, they were, disliking garish color in clothes, oddly rigid and artificial in their head-dress. There has never been a people who resembled them either in appearance or in civilization.

The Egyptian record is unbroken from Paleolithic times down. In savage days the valley of the Nile was a long gully of jungle and swamp, inhabited by hippopotami and crocodiles. It was enormously fertile then as now, for then as now the river flooded the valley each summer, spread-

ing rich loam over the bottom-land. All it needed was a race of beings possessing ingenuity and persistence enough to plough and plant and, at times, irrigate. That was all. Yet for tens of thousands of years the Nile had been carving its fertile canyon across the desert before the first seed was planted by a human hand.

Many odd chances of geology united to prepare this paradise for man. Surrounded by the Sahara Desert, it is more densely populated to-day than any country of Europe. Its cultivated area is about 11,000 square miles, not quite that of Maryland and Delaware together. Its population is 11,000,000, seven times that of these two States. Its population was 7,000,000 in Roman times, and it can be guessed that it must already have been very great around 3000 B. C. when the first of the Great Pyramids was being built and 100,000 men were at work thereon.

What made possible such a dense population in the midst of barren wastes of sand? The answer begins far away to the south under the equator. There Lake Nyanza assembles the headwaters of the Nile 4,000 miles from its delta upon the shores of the Mediterranean. Among the rivers of the world only the Mississippi and Missouri combined have a longer channel. But only for the last 750 miles, from Assuan to the sea, has it built a habitable, fertile land. It is as if the valley of the Mississippi were fertile only from Tennessee to the Gulf. There is a geologic reason for this. Above Assuan the river flows through hard sandstone into which it has eaten with difficulty. It has cut a narrow, tortuous gorge for the most part and left a series of six rapids, called cataracts. Below Assuan it has flowed over a soft limestone and has cut an even channel at the bottom of a wide and shallow canyon. East and west the walls of the canyon rise a few hundred feet as a rule; but at times there are cliffs a thousand feet high. The width of the canyon varies from two miles to thirty.

Its walls are desolate hills of yellow sand and rock. Its green floor is Egypt.

That floor owes its extraordinary richness to another geologic chance. The river just described is the White Nile. Above the sixth and highest cataract, at the city of Khartum, the Blue Nile enters from the east. As its name suggests, it is the bearer of a rich dark soil from the highlands of Abyssinia. Thus the Nile brings to Egypt not only water but a yearly renewal of its soil. It is of that soil that the delta of the Nile has been slowly built. Starting 150 miles from the sea, the fertile floor of Egypt spreads out into a great fan facing seaward. This huge triangle was once a bay of the Mediterranean; it is now Abyssinian mud transplanted by the Nile.

One other favoring gift is the climate. Cairo, at the southern end of the delta, is the same latitude as New Orleans. One might expect the country farther south to have an enervating, almost tropical climate. As a matter of fact, the pure, dry air of the desert saves Egypt. Even the extreme heat of summer is not oppressive. The whole valley is singularly healthful and delightful. There is an utter absence of the moist heat of the tropics that saps energy and makes hard work impossible.

The Neolithic culture of Europe that built the large villages of the Swiss lakes in the centuries before 2000 B. C. is represented by a similar period in the valley of the Nile. Neolithic graves have been found in Egypt exactly like those of Europe, the body lying in a curled-up position on its left side, surrounded by flint knives and pots, all equipped for the next world. The polished stone tools reveal a long and elaborate development before bronze was known. Not quickly were the swamps reclaimed and the hippopotami killed off. The same long centuries of improving tools, domesticating animals, and learning to plant and weave and bake pottery, were needed here as farther west. But the

Neolithic Age began earlier and ended earlier here, and it ended in a far different fashion. It ended well before 3000 B. C. instead of around 2000 B. C., as in western Europe. It ended in dense masses of people living in strange things called cities—the first the world had known.

Here the geographer sees his theories in action. He points to the fact that only irrigation can easily support such dense populations as Egypt possessed, and to the fashion in which irrigation must have developed forethought, mechanical skill, and a spirit of co-operation requiring a more highly developed government. It is certainly a significant fact that the first two civilizations, Egypt and Babylon, were not merely river cities, as is often stated, but irrigation cities, situated in bottom-land that needed a network of small canals to bring out its fertility. Egypt was a paradise only for a clever people willing to work hard. One must not make the mistake of thinking that the first civilizations grew up in lands of sloth and plenty. The lotus-eaters that the Greeks knew as the embodiment of ease and forgetfulness were anything but Egyptians.

It is to be stressed also that it was in cities that these first civilizations developed. At intervals men feel that cities are wicked and dangerous growths. They can become such in times of decline, but throughout history they have equally been the places where progress and civilization have most flourished. This is far from saying that the largest city is the most civilized—a small city like ancient Athens or modern Geneva may be highly civilized. It is equally far from saying that city people are any better or wiser than country people. In fact, it is largely the fresh, vigorous country folk who by going to the cities keep them alive and make their greatness. But from whatever comes that greatness, it is in the city that it flourishes. From the point of view of history the country, at its best, tends to be a region of conservative outlook and strong character rather than of intellectual advance.

It is an appallingly long stretch of time that the actual history of ancient Egypt covers. The names of pharaohs are known for over 3,000 years. For convenience, the rulers have been grouped into thirty dynasties. There are only a few of their names and but few dates that need to be remembered. Already in the Fourth Dynasty, when only a score of kings had ruled over a united Egypt, there came the Age of the Great Pyramids, around 3000 B. C. No better proof could be asked of the ancient roots of Egyptian civilization than these gigantic monuments. Centuries of growing civilization must have preceded them. Egyptologists estimate that by 4000 B. C. there were already good-sized towns in the valley of the Nile ruled by local chieftains or kings.

The pyramid-building itself developed swiftly. In 150 years the Egyptians progressed from a small pyramid of bricks to the great pyramids at Gizeh, built of gigantic hewn stones. The vast size of these pyramids has made them famous—the Great Pyramid covers 13 acres and is 500 feet high. The engineering skill they record is equally amazing. They are designed with mathematical accuracy, and the stones are exquisitely cut and joined. How such huge blocks of limestone—they weigh from two to three tons—were lifted into position has been much debated. There seems no doubt that for the most part they were dragged up inclined slopes of earth and brick by sheer manpower, the tugging of hundreds of men at ropes. But Herodotus, the Greek historian, speaks of their using small cranes, and it is possible that they had some mechanical knowledge of the lever by which they pried the stones into place. The Egyptians had little theoretical knowledge of anything—they developed neither algebra nor geometry, for instance. Their practical ability was immense, as is shown by the building of these great stone structures that have never been surpassed in size or craftsmanship.

The pyramids of Gizeh were built close to the valley of the Nile. They stand in the desert on the sandy hills bordering the valley to the west. Below them on the Nile was the ancient city of Memphis, long since vanished. (The modern city of Cairo, near the beginning of the delta, is a few miles to the north.) Each pyramid was the tomb of a single great king—the Great Pyramid was the tomb of King Cheops.* From the Great Pyramid can be seen a line of pyramids stretching southward as far as the eye can see. They are surrounded by smaller, flat-topped tombs of the queens and lords. Before each pyramid was a temple in which was placed food, drink, and clothing for the dead king, exactly as if he still lived in his body. A long stone gallery sloped down to the city below, connecting the tombs with the palace in the valley. In the heart of the pyramid, at the end of a long corridor, lay the body of the dead king in a burial-chamber.

The practice of preserving the body by embalming it was just coming in at this time. At first only the bodies of the kings were thus treated. The custom grew in popularity and the methods of embalming bodies improved, and as a result there have been preserved a great number of these mummies. Kings and queens and lesser folk are preserved in a state of uncanny lifelikeness, thanks in part to the dry air of the desert.

The Egyptians built the greatest tombs the world has seen, and they paid more attention to the bodies of the dead than any other people. Not only did they try to preserve the bodies as long as they could, to procure a sort of immortality for the flesh, but they carved wonderful statues, portraits of the dead, as lifelike as possible, to set up in the tombs. All this grew out of the Egyptian belief in the life of the body after death. They believed in a soul which lived after death, but they thought that it took its body

* That is the way the Greeks wrote his name, and it is the familiar form. His name in Egyptian was really Khufu.

with it; at any rate, could not get along without it. So the mighty that could afford the expense built their tombs seemingly indestructible, and left sums of money to pay for food and drink to be placed in the tomb. Everything that a people could do to procure immortality for the body the Egyptians did. Yet in time the care of the dead ceased, the tombs were rifled, and the desert sands covered all save the great pyramids.

One is apt to think of the Egyptian mummy as the peculiarity of a strange people. Carried to this extreme it has not many parallels; as it happens, one is in South America, for the Peruvians sought to preserve bodies much as did the Egyptians. But there was careful burial in the Old Stone Age. The Cro-Magnon men, for example, buried their dead in red ochre, clearly a ceremonial matter perhaps with some idea of preservation involved. Long before that, Neanderthal dead were laid away surrounded by their weapons. Coming down to Neolithic man, there is the building of the innumerable stone tombs of France and England. To show great care for the bodies of the dead, and to supply them with weapons as if they were expected to live again, are among the commonist customs of primitive man. A dry climate like that of Egypt and Peru makes it easy to embalm and preserve bodies and fosters that particular custom. The religious belief, tying up immortality with the body, is simply the natural way in which a primitive mind views death and life thereafter. Belief in an immortality of the soul regardless of the body is a later idea that first was found in India and Palestine.

The other religious ideas of the Egyptians are complicated and hard to interpret. In the beginning each tribe or city seems to have had its god, most often an animal (the falcon, for example), and somewhat suggesting the totem of the savage. These many gods were carried over to historic times, knit together in elaborate myths, and com-

bined with new native gods. As a people the Egyptians were always polytheistic. Osiris was the most worshipped of the gods; the goddess Isis was his wife; their names have become part of the Egyptian story. The sun was the most conspicuous natural object for dwellers beneath the cloudless skies of the Nile valley, and the sun-god became a great deity. He was thought of as a falcon winging his way across the sky from east to west, and his symbol was a sun with wings. This design appears later in Assyrian art, and remains to-day a common decorative theme.

The stages by which all these gods came to be worshipped is, unfortunately, far from clear. One might hope to find a good record of how the totemistic ideas of savage man became the true gods of the first civilized men. There is one clue which seems especially promising at first sight. Egyptian statuary shows frequently queer beings half animal, half man—the body of a man and the head of a falcon, or the head of a king and the body of a lion (as in the sphinx), and so on. Is this a half-way stage between totem and god, so to speak? Did the idea of a god develop gradually from worship of an animal? The evidence is not at all conclusive, for when one comes to examine these strange statues, one finds that they were, to a large extent, a late development in Egypt. After the rise of Egypt to its highest art and purest religion in the centuries around 1500 B. C., there was a decline in every way, and a period was reached when Egyptians, lacking fresh inspiration, professed to turn back to ancient times for religion and for art. Animals were worshipped, the cat among others, and many strange statues were contrived. But this was clearly a decadent religion, and it is not at all clear that it faithfully imitated primitive religion in Egypt. Perhaps it did, but the fact is not settled. The point is a good illustration of how difficult it is to draw inferences about older times from later. Who knows but that the rites of sur-

viving savages are not similar decadent practices differing essentially from true primitive ways?

But one can with certainty discover many primitive traits in Egyptian religion and society. In savage tribes the chief is always sacred, a priest as well as a ruler. There is mana in him. The first Egyptian pharaohs were not only priests but gods. They were worshipped as well as obeyed. (There are numerous survivals of this point of view today. The Emperor of Japan is still worshipped as a god. The divine right of kings, a modern version of the same attitude, was maintained by Louis XIV in France only a little more than 200 years ago, and by Kaiser Wilhelm II in Germany to the hour of his fall in 1918.) Only a tyranny resting on such primitive savage faith could have impelled droves of men to the incredible labor of building the pyramids. Very early there developed a large priestly class who in time became immensely wealthy and sufficiently powerful to make and unmake kings. But by that time the religious ideas of the people had developed considerably, and the pharaoh was hardly a god.

Outside of king and priests, there was a large class of nobles and a small but growing middle class of artisans and tradesmen. The great bulk of the population, that tilled the soil and worked the buckets of long well-sweeps in the period of irrigation and reaped the crops, were slaves or serfs. We have ugly pictures from the Greek historians of men working under the lash to build the great pyramids. Probably the lot of the ordinary laborer was not as miserable. But it was not pleasant, especially when the tax-collector came around. The picture of this collection enforced by merciless beatings, and accompanied by wailings and lamentations, dates from earliest times.

The same barbaric religious faith that held the Egyptian people bound to the land held the artists of the country within narrow limits. Art in Egypt never led a free life,

as in Greece. It was always used to carry out a rigid religious purpose. Its first great use was to make of indestructible stone a double of a dead person that could be set up in his tomb and help keep him alive. It must be a faithful portrait, but it could not be too faithful; for instance, it could not show the dead man as anything but a youth or in the prime of life. The work of these carvers of statues was hedged about by every manner of rule and convention. Nevertheless, these portrait statues rank among the greatest that any people have produced. Quite as wonderful are the paintings and bas-reliefs of animals. There is no questioning the rare beauty of Egyptian art. It sums up well that mingling of savagery and civilization, of stupidity and insight, of clumsiness and delicacy, which marked these discoveries of civilization.

Egyptian art was the first civilized art and Egyptian literature one of the first literatures. Rolls of papyrus packed in jars have been unearthed, giving children's story-books, poems, novels, religious drama (like the modern "Passion Play"). Some of the later poems have the exalted beauty of the Psalms. The Egyptians not only invented writing, they put it to its highest use.

But few facts need to be remembered from the long-remaining centuries of Egyptian history. In many respects this first period of the Great Pyramids (from 3000 to 2500 B. C.) was the greatest of all. Around 2000 B. C. the scene shifted up-river from Memphis to the second great city of ancient Egypt, Thebes. Here, far up the Nile, new rulers brought the nation to its second great period, the Temple Age, in the years following 1500 B. C. This was despite the temporary conquest of Egypt by a mysterious people coming from the East about 1950 B. C. whom the Egyptians called Hyksos, or Shepherd Kings. Probably the horse and the chariot aided in this conquest, and this date and this fact are memorable.

The isolated position of the Egyptians had saved them from attack before and had kept them from being a military people. Now, in organizing to overthrow these conquerors from the East, they developed a fighting spirit, and in the years around 1500 B. C. the first great Egyptian Empire was conquered by the sword. Its power ran clear to the Euphrates (where by this time Babylon had already risen and fallen). In one of these Egyptian campaigns in Palestine came the first great battle in the plain of Megiddo, the Armageddon of the Bible, the most fought-over spot in the world. The military genius and ambition of one great pharaoh, Thothmes III, who ruled from 1500 onward for a space of half a century, accomplished all this. He is interesting as the first of the great conquerors, and the swiftness with which his empire collapsed after his death might well have given pause to his successors—to Darius the Persian, and Alexander the Macedonian, and Napoleon the Corsican. But it is not of the distant future that such military conquerors think. Their dream, like the dream of any ordinary man, is of their own glory.

Thothmes III erected many monuments to his own victories. One of them is the obelisk now in Central Park, New York. It was he, too, who built much of the magnificent temple of Karnak adjoining the city of Thebes. This age of temples surpassed the age of pyramids in splendor. There was little light in these Egyptian temples. They were the dark tombs of kings and the homes of hidden gods; utterly unlike our modern Christian churches. But they have a majesty that has never been surpassed.

There is an American saying that it is only three generations "from shirt-sleeves to shirt-sleeves"; by which is meant that if a poor man makes a great fortune by his ability, his son will not have the ability to enlarge it, and his grandson is certain to squander it completely. The exceptions prove the rule, though it does not always work out

in exactly three generations. The son of Thothmes III did no more than keep his father's empire together. His great-grandson, Akhnaton, saw it collapse completely. A strange young idealist was this pharaoh. His greatness lay in his religious faith. He was the first believer in one god that the world has seen, and he tried his best to convert his people to his lofty faith. But he was far in advance of his time, and he failed and his empire collapsed with him. For he was utterly lacking in practical ability. Thothmes III was a tyrant but an able organizer, and he brought peace and order in the wake of his sword. Akhnaton was a poet and a dreamer, and in his wake came war and chaos.

We must now turn back to Babylon and to Crete, for we have carried the story of Egypt far past the beginnings of these two contemporary civilizations. Babylon had waxed great and already fallen by 2000 B. C. The golden age of Crete was reached at about the time of the golden age of Egypt, the reign of Thothmes III, around 1500. The Egyptian people held together for many long centuries after Akhnaton. There was even a revival of ancient pomp. Their doom was sealed. The various pharaohs bearing the name Rameses reign in this sunset era. The luxury of the rulers became more and more lavish. Religion wandered after strange gods. Thus in the end the Egyptian people were conquered in turn by Assyrians, by Persians, by Alexander; and ultimately became a Roman province just before the Christian era with the defeat and death of Queen Cleopatra.

Even so, fate seemed loath to end the fame of Egypt completely. Egypt was the scene of the brilliant intellectual leadership of Alexandria, a new city founded by Alexander the Great at the mouth of the Nile. Greek, Hebrew, and Christian learning kept Alexandria famous down to the third century A. D.

2. SUMERIANS AND SEMITES

When the Egyptians reached the Euphrates, they were much impressed by the fact that it flowed south instead of north like the Nile. They called it "the inverted river." There are other and more important points at which the two river districts differ. Egypt is a long narrow island all but surrounded by desert. It is extraordinarily isolated. Babylonia is somewhat protected by desert, but it is threatened from every quarter. So its story is very different from that of Egypt. It was invaded and conquered not once but many times. Its record is confused and complicated and can be sketched only in its broadest outlines.

Even the names of the region are confusing. It lies between and on either side of two great rivers, the Euphrates and the Tigris, which rise not far apart in the highlands of northern Asia Minor and flow in more or less the same southeasterly direction into the Persian Gulf. The Euphrates is the western of the two. At present they unite and have but one mouth. In ancient times the Persian Gulf extended 150 or 160 miles farther north than to-day and the two rivers had separate mouths. These miles have been filled in by the delta mud in the course of the centuries.

Babylonia was the ancient name for the lower part of this area near the Persian Gulf from 2000 B. C. onward. It was so named from the city of Babylon on the Euphrates, long since ruined and abandoned. (The nearest modern city is Bagdad, seventy miles to the north on the Tigris.)

Assyria is the ancient name for the upper half of this area plus the highlands to the northeast. Nineveh, on the Tigris, was the most famous of its ancient cities. Since the Assyrians finally conquered Babylonia, the ancients often called the whole area Assyria.*

* Assyria is not to be confused with Syria. The names have no connection whatever. Syria was the coast region on the Mediterranean across the desert from Assyria. Phœnicia lay to the south, and beyond was Palestine. In modern times Syria has been extended to include ancient Syria, Phœnicia, and Palestine.

Chaldea is simply a later name for Babylonia, where the Chaldeans succeeded the Assyrians in power.

None of these names has any geographical meaning to-day. Babylonia is part of Arabia. The upper area is known as Mesopotamia, from the Greek, meaning "between the rivers." It is ancient Assyria minus the highlands to the northeast.

If one pictures the mysterious Hittites occupying the region called Asia Minor to the northwest, the Medes and Persians dwelling to the east of Assyria and Babylonia, and the Arabs and other Semitic tribes tending their flocks to the south in the Arabian desert, all the important actors of the period will be in mind. One will also realize what a chaos of rival peoples has beset this westernmost edge of Asia since the earliest times. No area in the world has been so fought over, so often conquered and reconquered. Nowhere are the races of man so mingled. It has been the battle-ground between East and West through all history.

As might be expected, the lower end of the river region, Babylonia, is delta land and the more fertile. Farther to the north the land is higher and barer. Amazing crops can be grown by irrigation in Babylonia, but there are risks and anxieties unknown in Egypt. The Euphrates descends more rapidly than the Nile, and brings down so much earth that it blocks itself. As a result there are terrible floods, of which the Deluge of Noah may be a traditional account. The yearly summer flood of the Euphrates lasts about twenty-one weeks, the same period as the Deluge in the Bible. Canals are far more difficult to plan and to maintain here than in Egypt. When the people finally declined in vigor and the country was overrun by invaders, the dams and canals were quickly ruined. As a result, from being densely populated the region between the rivers became almost deserted, and has remained so for centuries.*

* It has to-day come under the control of England as a result of the World War, and new irrigation works now being built will doubtless redeem the whole area again. England has already accomplished a similar improvement in

Exactly as in Egypt, the earliest civilization of this region began in the lower and more fertile land near the mouth of the Euphrates. Sumer was the name of the country, and its civilization is called Sumerian. But this earliest civilization was swallowed up in a succession of empires all proceeding from one great race, the Semitic. It stands as a prelude to the long Semitic story.

The first part of that story had three successive chapters, the Babylonian, the Assyrian, the Chaldean, and it ran from 3000 B. C. to nearly 500 B. C.; roughly, the life of Egypt. By that time the Semitic progress was turning westward in the adventures of the seagoing Phœnicians that culminated in Carthage. That is the second part of the Semitic story, and it ended with the destruction of Carthage by Rome just before the Christian era. The third part was the story of the Jews of Palestine (just to the south of Phœnicia). Their history was a small episode among the great triumphs of other Semites, but it is of crowning interest to the Western world for the fact that from this minor civilization on the shores of the Mediterranean sprang the Christian religion. The fourth and last part was the great Arabian revival under the spur of a new religion, Mohammedanism, in the seventh and eighth centuries A. D. Semitic armies then pushed westward across Africa and conquered all Spain. Incidentally they also regained this scene of their first triumph, Babylonia, and built the magnificent city of Bagdad, not far from the site of their dawn of civilization 3,500 years before.

In that rough division of mankind into four great types, Mongolian, Negro, American (red), and Caucasian, the Semites form a portion of the Caucasian race. They first appear in and surrounding the Arabian desert. For this

Egypt. During its protectorate it built the great Assuan Dam at the First Cataract, controlling the flow of the Nile and making famines in Egypt a memory of the past. China is another country that sorely needs great irrigation works. Until she has them, there will always be Chinese famines.

reason it is possible that Arabia was their original home, the place in which their type was fixed. But this is only a surmise. They may have come from Africa or elsewhere. The ancient Arabs were typical of the race in its purity, and the modern Bedouin retains much of their look and character. The ancient Hebrews were simply one tribe, the tribe of Judah, that left the desert life for a more settled existence in Palestine, and then mingled with other stock. Just how much of this ancient blood persists in the Jews of to-day is a point upon which the anthropologists are not agreed. Apparently the hook nose which some Jews have is not Semitic at all but the result of a crossing with Hittites of northern Asia Minor. (Who the Hittites were is another story; again the anthropologists are in doubt. Their language as found upon inscriptions is still a mystery.)

The Semitic languages form a closely related group. But language does not at all coincide with race, and there are many Semites to-day—the Jews of America, for example—who speak non-Semitic languages. Arabian is the chief of the Semitic languages which is still spoken by a numerous people. Hebrew, the language in which the Old Testament was written, was the tongue of the ancient Jews. It is used to-day as the religious tongue of the Jews now widely dispersed in many countries, and exists in a corrupted form in the various dialects known as Yiddish, a mixture of Hebrew words with Russian, German, etc. Christ and His Apostles spoke not Hebrew but a closely related Semitic language, Aramaic, which, beginning in Mesopotamia and Syria, spread southward to Palestine before the beginning of the Christian era. There is, however, no Aramaic version of the New Testament. The earliest manuscripts are in Greek, presumably translations from earlier Aramaic writings.

The Semites of the Arabian desert are the first nomads

of historic times, and as the nomads of the world have played an important part in turning events, one must understand what they are. Nomad means wanderer, but historians use the word for a particular kind of wanderer. The early savages were probably wanderers, hunting this jungle and that, sleeping in one cave for a while, then moving over the hills as the game and the season changed. But they were not true nomads. These developed much later in history, after the taming of domestic animals; for the true nomads are herdsmen, not hunters.

Their way of living clearly results from the sort of country in which they live, and many of their characteristics are products of their way of life. They offer one of the best illustrations of how geography can mould a people. Certain traits are common to all nomads. Certain others depend upon differences of climate, upon the animals which they possess, and upon the life which they lead in consequence. These southern nomads of the Arabian desert had no horse at this time. The Arabian thoroughbred was a much later product—the result of importation from the north—and the hard-riding, adventurous Bedouin of today, like the fiery Arabian conquerors of the sixth and seventh centuries A. D., differed much from these first Arabs, who had only the plodding ass as a beast of burden, supplemented a little later by the invaluable but heavy-footed camel. As will be seen later, to the north of Asia Minor stretched grass-lands of a very different character, cool of climate, the natural home of the horse.

True nomads have no home. They dwell in a desert or plateau region where the soil is poor and the grass is sparse. They must move on every little while or their flocks will perish. They live in tents which they can strike in a few hours. Each group is a family of nearly related folk, ruled by the oldest man, the father of most of the children. Such a system is called patriarchal. Abraham, Isaac, and Jacob

were patriarchs, and there is an excellent description of a fairly advanced patriarchal life in the Old Testament.

It is a bold and lonely life. At any hour the nomad may run into a hostile band and must fight for his sheep and his goats, to say nothing of his family. The nomad is inevitably a brave and a good fighter. His outdoor life gives him a magnificent body. He is a keen observer of nature, of wind and weather, the first student of sky and stars. He has independence and the dignity that goes with independence. He can be intensely religious in the southern grass-lands, as the history of Christianity and Mohammedanism indicates. In the north the hard-riding adventure of life stirs less need of lofty consolation. To complete his list of virtues, he is hospitable; the stranger who arrives for a night's lodging is a sacred guest. This is because there are no inns in his country, and he must often ride off in search of strayed animals.

Nomads have the defects of their qualities. Their independence keeps them quarrelling and makes it difficult for them to unite in any cause. They are honest within the family circle; the robbery of caravans, of villages, the stealing of an enemy's cattle, are things to be proud of. They cannot pass beyond a primitive stage of civilization, for the higher forms of civilization can be achieved only among people living in permanent homes and in large communities. Nomadic peoples can be thought of as a reservoir of brave, hardy stock, necessarily barbarians. They have never contributed directly to progress; rather are they often destroyers of civilization. But they can often prove in the end a source of fresh strength and vigor for an established civilization. That is exactly the rôle that these Arabian nomads enacted in the centuries following 3000 B. C.

Drought is the great force which drives nomads beyond their boundaries. It is one of his blessings that he can cut and run. Driven by hunger, nomads first raid the sur-

rounding villages—there is an old feud between herdsman and farmer. When the drought is bad enough, the great eruptions of nomads occur. They band together, burst all boundaries, and march forth to forage and conquer in distant lands. It is a movement like this that justifies the geographer's statement that "history is geography set in motion."

The first civilization of Babylonia, lying to the east of Arabia, was not the work of these nomads. It was a non-Semitic people, the Sumerians, who founded it in the thousand years from 4000 to 3000 B. C. These rivals of the distant Egyptians seem to have looked somewhat like modern Hindoos. They shaved their heads, as did the Egyptians, but wore no wigs. They neither looked like Semites nor was their language Semitic. Probably they were mountaineers from the east. There are no stones in this river district, so there could be no great pyramids as in Egypt. The villages were built of sun-dried brick, as so often in the Orient to-day. Such brick do not weather well, and in time the houses fall down. The new house is built on the dust of the old, and thus in the passage of time a village rises on a mount of dead houses. It is by digging in these mounds of Babylonia that archæologists have learned much of this ancient civilization.

But if the Sumerians left no stone monuments, they left proof of that greater achievement which has already been traced in Egypt—writing. By 3000 B. C. they were writing in syllabic signs. The earlier picture forms have been traced in some cases but the record is not as complete as in Egypt. There were 350 syllabic signs, and the Sumerians never went beyond them to the alphabetic stage. Thus they stopped short of the Egyptian achievement. They wrote in a peculiar fashion. For paper they used soft clay tablets, and they wrote by jabbing into it the corner of a square-tipped stick. The marks they made were thus a se-

ries of little wedges. Because of this look, the system of writing is called cuneiform from a Latin word meaning "wedge." It was a slow and clumsy method of writing compared to pen and ink. Yet it prevailed in Babylonia down to the Christian era and spread to many other countries. The Babylonians dusted a letter with dry clay after writing it to keep it from sticking, covered it with another piece of clay, and baked both together. Receiving a letter was receiving a brick.

There are other records of this ancient people who share with the Egyptians the honor of inventing writing. There is a stone bas-relief which tells surprising facts as to their military ability. A row of soldiers is shown with spears, shields, and helmets, grouped in a close mass like the Greek phalanx. They were evidently, 3000 B. C., highly trained fighting men, completely equipped and carefully drilled. As fighters, these Sumerians were far ahead of their Egyptian contemporaries of the Pyramid Age. As artists they were much inferior by comparison with the exquisite portrait statues of the Egyptian tombs. One peculiar object, however, they developed to a high state of beauty in connection with their cuneiform writing. That was a seal with which to sign their clay letters. Only, instead of being a seal to be stamped, like modern seals for sealing wax, it was a cylinder seal and was rolled over the soft clay. These cylinder seals, with their pictures, tell more of the times than any other relics.

As excavations in the hills to the east proceed, more will be known of these mysterious folk who rank with the Egyptians in antiquity. Their civilization was the basis of all the great Semitic kingdoms that followed. Sumerians lived on amid the invaders from the desert, but as a nation they were swallowed up by their less cultivated conquerors. So it has happened again and again in the history of the world. The future of the land of the two rivers lay with

the Semites, who quickly adopted all the civilization that their victims had so laboriously built up—cuneiform writing, cylinder seals, and all—and proceeded to develop it with a new vigor and into a new greatness.

The first Semitic kingdom in Babylonia extended from one great king to another, from Sargon to Hammurabi, and covered most of the period from 3000 to 2000 B. C. Sargon was the warrior who conquered Babylonia, the Charlemagne or Alfred the Great of the Semites.* His was the period of great artistic achievement, as well. Hammurabi was the lawmaker, the organizer. By this time the Semitic character had completely conquered the older Sumerian. On the monuments the clean-shaven Sumerians were replaced by bearded Semites, a people that liked their hair long and greased and curly and loved gaily colored robes. Art declined. The ability of the Semite as a merchant and tradesman came to the fore. Here was the first great commercial people in the history of the world. The donkey caravans of the Babylonian merchants marched far and wide. There was something more than haggling over prices. To take a caravan over a desert was as great an adventure as putting to sea in a ship. It was a fitting task for a nomad people. It was doubtless in their trading across that sea of sand, the Arabian desert, that the Semites had their first training in commerce with far countries. Chiefly the bales of goods contained grain and dates; there was also leather and wool. Each bale bore a clay tag stamped by the cylinder seal of the merchant. Hundreds of these tags have been dug out of the rubbish of the Babylonia mounds, once courtyards of ancient merchants in forgotten towns over 4,000 years ago. The mark of the string that tied them to the bale is still upon them.

Hammurabi fought for many years before he was su-

* Two thousand years later, in the eighth century B. C., an Assyrian king took this same name of Sargon. He should not be confused with this first great Semite.

preme. He founded and built the city of Babylon, and, strictly speaking, it is only from this period that there was a Babylonia. Thither he moved the seat of power when victory was complete. But he was not distinguished as a warrior or conqueror. He did not greatly extend the boundaries of his empire. It is as organizer of a nation that he claims admiration. He ruled his land much as a patriarch ruled his family in the desert. His eye was everywhere, his efficient hand upon each detail of administration. A long series of his letters have survived. There is an "Order for the Appointment of Additional Sheep-shearers," an "Order to Finish Clearing Out a Canal in the City of Erech," an "Inquiry Concerning the Misappropriation of Temple Revenues." Money was the chief thing absent, for merchants were still buying and selling by weighing out silver, a half-way stage between primitive barter (the exchange of dates for corn, etc.), and coined money.

The laws of Hammurabi were largely of ancient origin, but the great king codified them, and doubtless developed them. He appointed judges to try disputes, and lawsuits were innumerable. The Babylonians were the first great litigants. The modern idea of law and order first appears in Babylon. These city-dwelling Semites travelled a long way from their nomadic ancestors, among whom the blood feud was the regular method of settling a dispute.

The modern spirit of the Hammurabi code in some respects is amazing. The position of women was especially favorable. They could own their own property, bring lawsuits, and had equal rights of divorce with man. Justice to the widow, the orphan, and the poor was commanded. On the other hand, the old formula of "an eye for an eye, a tooth for a tooth" controlled punishments. If a house fell and killed the son of a tenant, it was the innocent son of the builder who was condemned to death.

The other two chapters of this Babylonian story must be

told before turning westward. Strange hill people called Kassites, pouring down from the east, suddenly conquered Babylonia around 2000 B. C. They were barbarians, and their rule of many centuries has left few records. Beneath their sway the well-organized commerce of the Semites seems to have run on much as before. These invaders from the east could be ignored but for one fact: they introduced the horse to Babylon, and as a result this strange steed spread clear across Asia Minor, even into Egypt with the Hyksos conquest a few hundred years later. This was an epoch-making event. Heretofore only the camel and the ass had served as beasts of burden. By comparison, the horse was an improvement as great as was the steam-engine over the stage-coach. Especially in warfare, the new animal revolutionized old ways. More than that, the horse seems to have been everywhere the mark of those Indo-Europeans whose arrival will presently be traced in Europe from 1500 B. C. onward. The date here in Babylonia, 2000 B. C., when the horse appears, introduced from the highlands to the east, is worth noting for its part in the story of the Indo-Europeans.

It is the upland story of the two rivers, the rise of Assyria, that comes next, a brief chapter, a hundred and fifty years of cruelty and beauty. No other people in history were as terrible in victory as the Assyrian emperors. No other Semitic art was as wonderful—excepting always that written art of the Jews which is the magnificent prose of our Old Testament. As will appear, this was being slowly composed far to the west by the sages and prophets of this pastoral people, while the Semites of Assyria were gathering strength for their hour of empire.

To come to the triumph of the Assyrians is to pass over a long period of time, more than 1,000 years, and pass far out of that dawn in which the chapter began. By 700 B. C. Egypt had lived her life for 3,000 years and was approach-

ing the end; the greatness of Greece was close at hand; and to the east the great power of Persia was looming up. Several waves of Semitic nomads driving across both Euphrates and Tigris built up this new power to the northeast. There is no need to remember the names of the warlords who terrorized all Asia Minor for a few centuries. The rise of Assyria was swift, and even swifter was its fall. One after another the cities surrendered to the Assyrian armies. Damascus, the capital of Syria, Jerusalem, the capital of Palestine, even far-away Thebes on the Nile were stormed and sacked. Because of a revolt, Babylon was burnt, the population driven out, and the waters of a canal turned aside to flow over what had been the greatest city of the east. Meantime the Assyrian kings built the great city of Nineveh, the most gorgeous of ancient capitals, with palaces upon a scale theretofore undreamed of, that in size have probably never been equalled since.

The prowess of the Assyrian armies was supreme. They had learned the use of iron, and their soldiers were probably the first to be equipped with iron weapons in large numbers. The Assyrian archers were the most famous of their troops; they were able to pick off the charioteers of the enemy from a distance. Their armies also used troops armed with heavy spears and shields and, for the first time in history, the battering-ram. The unbelievable cruelty of the emperors was reflected in the ferocity of the fighting men. From the highlands of Persia to the Nile the name of Assyria was dreaded and accursed. One Assyrian emperor made a practice of maiming and killing the men and women he captured and burning alive the boys and girls.

It was wholly a military empire that Assyria built up, held together by constant warring and abominable cruelty. No organizing ability was in its emperors. Booty and captives were all that they sought. Their own state, organized as a great war-machine, could not stand the strain of con-

tinual battling. Assyria was drained of its man-power, its agriculture declined, and her armies were finally composed largely of aliens. When fresh Semites from the desert, the Chaldeans, overran Babylonia, and the Medes pushed down from the eastern heights, Assyria fell. The whole vast empire collapsed, Nineveh vanished from the face of the earth. When Xenophon and his 10,000 Greeks marched over the site 200 years later, there was only a mound of rubbish to mark where the greatest of imperial palaces once stood.

There is poetic justice in the fact that Assyria is best known to-day for its magnificent bas-reliefs of ferocious animals. Of human beings the statuary was poor. Her history marks a strange reversion to savagery in the story of man; and a savagery fortified by the ingenuities and ambitions of men fully awakened to the refinements of civilization.

The final Semitic chapter on the two rivers, the Chaldean, was even briefer than the Assyrian. It lasted less than a century and was over before 500 B. C. Babylon was its centre, a new and marvellous city, reared by the might of Nebuchadnezzar on the site of the old. This king is one of the best known of ancient potentates because of his prominence in the Old Testament as the conqueror of the Jews. It was to this later Babylon that the children of Israel were led captive. At its height the Chaldean empire ran clear to the Mediterranean. It was a magnificent city that Nebuchadnezzar built. Its Hanging Gardens were rated by the Greeks one of the Seven Wonders of the World. They were roof-gardens, of trees and flowers, on the top of great arches where the king took his ease.

Among the ancients the Chaldeans were chiefly famous for their study of the stars. From early Babylonian times the Semites had been observers of the heavenly bodies, a trait which can be traced back to their nomad life under

the open sky. It was of practical service in planning a calendar, a task that has greatly bothered every primitive people. Like the Egyptians, the Babylonians based their month on the moon, and as a result were forced to insert an extra month every so often to make the seasons correspond with the right months. The Chaldeans became, through long centuries of observation, the great astrologers of their time. That is to say, they practised the ancient art of predicting the future by the position of the stars and planets. For this purpose they mapped out the heavens, named the twelve signs of the Zodiac, named five of the planets and observed their peculiar motions, and had some success in predicting eclipses. They were the first astronomers, but one must not exaggerate what they did. Modern science developed out of magic, but it was not until students turned their backs on the theory of magic that true science began. The most that can be said of the Chaldean astrologers is that they laid a foundation of fact upon which the science of astronomy was later built when man stopped trying to predict the future by the stars and simply tried to find out what they were and how they moved.

The story now turns westward to follow the fortunes of the Semitic peoples, for their hour in the East had struck. A new power was arising to the east of the two rivers, the great Persian Empire, which was to master all western Asia. But before that happened Phœnicia and Palestine, two small Semitic countries lying side by side on the Mediterranean, had their day.

In turning westward from Babylonia to Phœnicia many mysterious peoples are passed by, many puzzling problems of race and history. The hook-nosed Hittites to the north have already been mentioned. They are a people but just arising to view through the fog of centuries. They seem to have been inferior to the Egyptians and to the Semites in most that makes for civilization. But they reared a

powerful empire after the fall of Hammurabi and before the rise of Assyria. When more excavations have been made, scientists can speak with more confidence of this mysterious people that occupied the westernmost tip of Asia. More is known of Syria to the south on the Mediterranean and its great inland city of Damascus. Alone among the great cities of these ancient days Damascus remains great to-day. The people of Syria must have been a mixture of many breeds, but in the end a wave of Semitic nomads from the Arabian desert took a commanding position. These were Aramæans, and it was their tongue, Aramaic, which spread among the Semitic peoples, even driving out Hebrew from Palestine by the beginning of the Christian era. They were great tradesmen, like the ancient Babylonians. The tradition which viewed the Semitic races as above all else bargaining merchants rested upon these two peoples that centred about Babylon and Damascus.

But to turn to Phœnicia and Palestine is to see how false this conception of Semitic character is. Here were two small peoples, dwelling side by side each in a tiny pocket of a country—Palestine is but little larger than Vermont, Phœnicia not much bigger than Delaware—and each achieving a rank among the great nations of the world, the one as creator of a great religion, the other as sailormen and colonists. It is hard to see how versatility could go farther. Certain historians who like to explain everything by a formula have resented this success of a Semitic people as overseas adventurers and have sought to prove that the Phœnicians were not Semites. Nothing is absolutely certain in these early questions of race, but the evidence as to the Phœnicians is strong. Certain other historians have stressed the merchantlike side of the Phœnicians. It is true that they sailed for profit, bought and sold on a large scale, manufactured goods for sale, and generally carried

on an enormous overseas trade. Also, they had not much originality on the artistic side, being satisfied to manufacture in quantity whatever other peoples made popular at the moment. But the merchant motive is behind all overseas shipping—unless actual conquest is in view. And the colonizing success of the Phœnicians proves that they were a genuinely bold and adventurous people.

This ancient seafaring people occupied a narrow strip of land between the Lebanon Mountains and the sea. Cedars of Lebanon may have been among their first cargoes. Cedar doubtless planked their first ships. It is hard to fix the date of their beginnings. Tradition brings them from Babylon soon after 3000 B. C., and it was for long supposed that they were the first great seamen of the Mediterranean. But the discovery of Crete and its sea-kings has revised this view. The Cretan sailors are thought to have been the first rulers of the inland sea, and Phœnician supremacy is dated only from the fall of Crete after 1500 B. C.

In any event, the first keels to cut the waters of the Mediterranean were neither Cretan nor Phœnician, but Egyptian. As far back as the Pyramid Age the Egyptians were sending boats from the mouth of the Nile to the Phœnician coast for cedar of Lebanon. Black-bearded Semitic captives are pictured in the returning vessel. Egyptian captains coasted far down the Red Sea as well. On the Nile they had cargo-boats and pleasure-boats in endless numbers. These Egyptian craft were high at bow and stern and were built chiefly to be rowed by crews of a score of men or more. But some of them carried long masts and sails as well, and were true seagoing ships, well fitted for traffic in the southern Mediterranean, where winds are tricky and calms prolonged.

The Egyptians were never a great seafaring people, however, like the Cretans and the Phœnicians. They had too

much to attend to at home in their marvellously fertile valley. It is from a cramped or not too fertile shore that great sailors stand forth to sea—from Crete, Phœnicia, Greece, Scandinavia, Portugal, Great Britain, down-east United States. The Phœnicians had but a foothold on the coast. Of their great cities, Tyre was an island and Sidon stood on a rocky promontory. The sea was their true home. At the height of their power their ships sailed throughout the Mediterranean and even beyond the gate of Gibraltar. According to an ancient tradition they sailed around Africa, from the Red Sea to the Mediterranean; but there is question of this. They mined for gold, silver, and tin in far-away Spain. (That they worked the tin-mines of Wales is now doubted.) All the produce of Asia came to their ports in caravans and was shipped by them far and wide. From 1000 B. C. onward they began to found trading colonies along the Mediterranean as far away as Spain. Above all, they built Carthage in Africa, opposite the toe of Italy, that was to become one of the great cities of the Mediterranean; so great that in the second century before the Christian era the growing Roman Empire could not endure its threat and ultimately wiped it out of existence.

Empire was not in the Phœnician mind. Each city remained largely independent. The colonies acknowledged allegiance to the home cities, but there was no imperial bond. Rather was there a loose group of city-states, as later in Greece. Each new conqueror, Egypt, Assyria, Chaldea, Persia, humbled Phœnicia in turn. But it was not a conquest that greatly hampered Phœnician trade or profits. Tribute was exacted, but each conqueror had urgent need of Phœnician shipping for battle, and there was no destruction of Phœnician cities or fleets. Rather did the Phœnician adventurers go their way serving each new master as need be, but serving not less themselves.

Strange cargoes these dark seamen in their high-powered ships bore over the inland seas. Swords from Damascus, ivory and apes from Abyssinia, cloth dyed with their own Tyrian dye, ingots of gold and silver and tin, sailed in their holds. They served not only these first civilizations of the eastern Mediterranean but barbarians far to the west and north as well, our ancestors of western Europe who were still warring tribes of naked Gauls and Angles and Belgæ. Here one sees trade spreading across desert and across sea, mingling handicraft and produce, spreading inventions and ideas, a great and sure, if little noted, agent of civilization.

The religion of the Phœnicians has a bad name in history, for it carried down to the late centuries before Christ that strange and terrible practice of many barbaric religions, human sacrifice. In 307 B. C. at Carthage, when the city was besieged, 200 boys of the noblest families were burnt as sacrifices to the god Moloch. The civilization of the Phœnicians must be rated at a lower level for thus clinging to a barbaric rite in its most terrible form. But one must realize how wide-spread was the custom of human sacrifice among earlier people. The god Moloch was a god of the tribe of Judah as well as of the Phœnicians, and child sacrifice was long practised by the men of Judah. But the prophets of the Old Testament were loud in their protests against all human sacrifice. Similarly in Greece, where human sacrifice disappeared as civilization dawned, poets and philosophers condemned the idea as revolting.

Against this blot on the Phœnician record can be set the great progress made by the Phœnicians in writing. There is good ground for believing that all the modern alphabets of Europe come from the Phœnician via the Greeks, who based their alphabet on the Phœnician. Where the Phœnicians found their letters is far more of a puzzle. The earlier view that many were taken from the Egyptians is now questioned. A recent suggestion is that they came

from Crete. What is unquestionable is that the Phœnicians had the practical sense and imagination to take that step which the Egyptians, with an alphabet ready to hand, never took, write words with an alphabet of individual letters instead of with syllable-signs. They also adopted, probably from the Egyptians, the use of papyrus instead of a clay brick. From Phœnicia alphabet and paper passed to Syria, and the Aramæan merchants spread the use of these two great inventions far and wide in the Near East.

The story of the Hebrews is a tragedy so far as every outward mark of success is concerned. It is a long record of intertribal quarrels, failure and captivity, relieved by only one brief period of national success (under David and Solomon). Even at this height, the kingdom of Israel was a poor and tiny state by comparison with the great Semitic empires of Babylon and Nineveh or the city-states of Phœnicia. Yet it was fated that this lowly people should lead the rest of the East in its influence upon the Western world. Perishing as a nation, dispersed throughout the world, the Hebrews lived on as a spiritual force by virtue of their religion. Their prophets wrote the Old Testament of the Bible, one of the greatest pieces of literature. Jesus Christ, the founder of the great religion of the West, Christianity, was born of their race.

Many things conspired against the greatness of the Hebrew people. Wandering westward from the Arabian desert with their flocks and herds some time after 1500 B. C., they found little good territory unoccupied. The Phœnicians possessed the coast of Lebanon. To the north the powerful Syrians held sway. To the south a mysterious people, the Philistines, coming from overseas and now believed to have been Cretans, soon occupied most of the remaining coast land. So there was left only a narrow inland territory, cut off from its natural harbors, compressed between desert and hostile hills.

The northern half of this land was exceedingly fertile. The southern half, especially from Jerusalem south, was poor and forbidding. This difference had fatal consequences, for it bred two different types of Hebrews, the prosperous, city-dwelling children of Israel to the north and the lean shepherds of the kingdom of Judah to the south, and the unending quarrels between the two sections made a united people impossible. In addition the River Jordan, flowing from north to south (from the Sea of Galilee to the Dead Sea), further divided the country.*

As if these handicaps were not enough, the Hebrew people had the misfortune to settle on a great highway and battle-ground. The blood-stained hills of Megiddo lie in northwest Palestine. Whether it was Egypt going north or Assyria coming south, the path lay over Palestine. The Hebrew kingdom was the Belgium of ancient times.

The first Semites in this region were the Canaanites, and theirs was an old and established civilization when the Hebrews began to arrive. Their donkey caravans are painted on the walls in Egypt by 2000 B. C., and one can guess by their hook noses that these early Canaanites had already intermarried with the northern neighbors, the Hittites. The Hebrew nomads began to drift in among these earlier Semites from 1400 B. C. on. Some of them came direct from their Arabian home of sand. Others had passed long years of captivity in Egypt oppressed by cruel pharaohs. The Book of Exodus gives a traditional account of their life in Egypt, their escape and long wanderings up from Egypt and into the desert lands to the east of the River Jordan. Their leader on this memorable march was their great national hero, Moses. The goal of these tribes,

* The Jordan is an unpleasant, foul stream, of value neither for irrigation nor for transport. It is one of the strangest of rivers, lying far below sea-level for much of its course, at the bottom of a geologic fault or crack in the earth's crust. The Dead Sea, into which it empties, is so salt that no fish can live in it. It lies 1,300 feet below the level of the Mediterranean.

their Promised Land as they called it, was the fertile land of northern Palestine. Moses viewed this goodly prospect from Mount Nebo to the east of the Jordan and there died. His people passed over the river to fight the Canaanites and wrest their country from them.

There were ups and downs in the fortunes of the Hebrews. Joshua succeeded Moses, and in the Book of Joshua there is told the conquest of Jericho. (Joshua 6.) Thereafter the Egyptians came back into power for a last time, in the twilight of Egyptian ascendancy; to be driven out in a fight celebrated in the magnificent Song of Deborah, one of the oldest parts of the Bible (Judges 5):

"The kings came and fought; then fought the kings of Canaan in Tanach by the waters of Megiddo. . . .

"They fought from heaven; the stars in their courses fought against Sisera. . . .

"O my soul, march on with strength."

This occurred around 1200 B. C. At this time Egypt was decaying and Assyria's conquest of the west was 500 years away. But a new people had arrived to oppress the Hebrews, the Philistines. It is a recent theory of the archæologists which tentatively identifies these people as Cretans. Their conquest of Israel is recorded in the Book of Judges (13), and to this period belongs the striking story of Samson, the strong man of Israel, and his betrayal to the Philistines by Delilah.

Around 1000 B. C. began the brief triumph of the Hebrews. Ringed about on every side, they began to make headway under King Saul. Young David, a shepherd of Judah, slew Goliath, the Philistine giant, with his slingshot, and the fortunes of the Hebrews looked promising. But the rivalry between Saul and David delayed success, and it was not until Saul's death that the great ability of David as a fighting man and leader began to count. Then

he speedily conquered west, north, and south. He built up a kingdom that stretched far beyond Damascus to the north and to the Red Sea on the south. At last the Hebrews were united in a small but powerful state. From Jerusalem as his capital King David ruled with skill and authority over both Judah and Israel. But the son of David was Solomon, and he displayed all the weaknesses of a great man's son as well as much good sense. He loved magnificence, and lived at Jerusalem in such oriental luxury as he could achieve with the aid of Phœnician workmen. He married the daughter of an Egyptian king. He built the first temple of stone at Jerusalem, replacing the tent in which the Hebrews had thus far placed the Ark of the Covenant. Its magnificence impressed the simple-living Hebrews, but Jerusalem at its greatest could not be compared with Babylon or Nineveh. And with Solomon's death, the kingdom carved out by the sword of David fell apart. The conquests north and south broke away. Worst of all, the Hebrew people themselves split again into the two kingdoms of Israel and Judah.

Yet for the Western world this cleavage was a benefit, for out of its conflict grew the noblest parts of the Old Testament. The north had always been more civilized than the south, and in these centuries following 1000 B. C. the children of Israel wandered after wicked luxuries and strange gods in the eyes of the simpler shepherd folk of Judah. There was the old story of a corrupt and decaying city life contrasted with a simple people tending their flocks under the open sky. From the desert east of the Jordan and from the hills of Judah came the protests of the shepherd-prophets in language that has never been surpassed for fire and for nobility. Elijah and Amos were among the first. Then when the Assyrian armies finally swept down upon the west, conquering Damascus and Samaria (the capital of Israel) and threatening Jerusalem, the Prophet

Isaiah spoke forth. Assyria failed before Jerusalem. But Chaldea shortly after 600 B. C. succeeded. Nebuchadnezzar carried away thousands of prisoners to Babylon, and there began the long exile of the Hebrew people. As for Palestine, the kingdoms both north and south were utterly destroyed.

Still the prophets of Judah cried aloud in language of unforgetable beauty. Jeremiah, the dejected, mourned from exile in Egypt. In Babylon were written such exquisite words of grief as those of Psalm 137. The greatest of all the prophets gave the world the noblest chapters of the Book of Isaiah (especially chapters 40-56). Therein he lifted the worship of the one God to a nobler and higher plane than the world had yet seen, and looking down the years gave the world the first hints of that beauty which was to be Christianity.

In the next chapter the rise of Persia will reach the conquest of Babylon, in which the Hebrews were freed and many of them returned to their homeland. Thus by 500 B. C. Jerusalem was again a city of the Hebrews. But it was never again a great capital; the old kingdoms of David had passed away, never to return. Only as the upholders of a great religion did these latter-day Hebrews continue a great tradition.

Their priests now collected and preserved all the ancient writings of the Hebrews, the books of law and history, the books of prophecy, the books of hymns. Upon their labor is the Old Testament based. It is a great traditional work, the labor of many men, writing at many times. The earliest portions are the most poetical, and one may think of the first Hebrew writers as poets chanting hymns of victory such as that of Deborah. Afterward followed the priests and historians. Toward the end came the prophets, who were poets as well, the greatest writers of religious literature in any tongue. Over a long period was this many-

sided volume written. It was slowly growing throughout the entire thousand years from 1500 to 500 B. C.

After Persia came Greece, profoundly changing the course of civilization in all western Asia. It will be necessary to go back and bring down to these crucial years other chapters of the record before the story of the Hebrews can be completed. In a sense it has never ended, for out of Palestine came Christianity.

It is an amazing record of versatility that these Semitic civilizations present. To be sure, none of these nations was of pure Semitic blood. In each case there was a mingling with earlier stock. But the powerful thrust of new life came direct from the nomads of Arabia, and their blood was the prevailing strain. Tradesmen of Babylonia under the wise and liberal Hammurabi, cruel warriors of Assyria, astrologers of Chaldea, mariners of Tyre and Carthage, prophets and poets of Judah, were equally children of the desert learning the first lessons of civilization. It was the people who learned that lesson least, as it happened—least, that is, in all the external trappings of civilization—the flock-tending prophets of Judah, who counted most in the centuries to come.

3. THE FIRST SEA-KINGS

In Egypt arose the first civilization of Africa, in Babylonia the first civilization of Asia. There comes now the first civilization of Europe, that of the islands of the Ægean, and especially of Crete. Yet one must avoid reading modern differences of race and place into these beginnings. All these civilizations grew up close to the meeting-point of the three continents. There was no sharp distinction at this time between East and West or between North and South, such as is felt instinctively to-day.

These Cretan peoples somewhat resembled the Egyptians in looks and in costume. They were of moderate height

and dark, and wore short kilts of gaily colored cloth and went naked above the waist. Living in a region of bush, they added high boots to their costume. Instead of shaving their heads as did the Egyptians, the Cretan men let their hair grow long, and often wore it in long plaits, as the Chinese wear their pigtail to-day and as the sailors of Europe wore theirs a couple of centuries ago. The women had even more distinctive costumes, with high head-dresses and long flounced skirts, absurdly modern in look. There is no question that these Cretans show from time to time a hint of European or Western character which makes them seem closer to us than do the ancient Egyptians or the ancient Babylonians.

Racially there are signs of mixture from the start, here as in Egypt; but also, as in Egypt, the dominating strain is generally taken to have been that dark Mediterranean race which made up the bulk of Neolithic man in western Europe. Unquestionably here is the underlying basis of the Greek people who loom so large in history around 500 B. C. Some historians would therefore call them Greeks; but knowledge of their history is still too recent and fragmentary to justify this use, since it is known that from 1500 B. C. onward another breed of men descended upon Greece. Perhaps if more writing of the Cretans is discovered and their language is translated their contribution to Greek civilization may be made clearer and it may be felt that they were truly the primitive Greeks. At present it is best to call them Cretans and their civilization Ægean—since it spread throughout the islands of the Ægean Sea—and think of the Greeks of history as a later race, the mixture of two breeds, the one ancient and Cretan, the other late and northern.

Until the discovery of the Ægean civilization in the last thirty years, the growth of the Greek genius seemed a miracle. So far as was known barbarians descending from

the north suddenly became the greatest race the world had seen. Without training or precedent they flowered into the wisest and most artistic of peoples. The essential miracle of the Greek genius, as of every other great nation or individual, remains. But it is now known that behind their swift rise around 500 B. C. stretched 2,500 years of slow progress; Athens was built not on barbarism but on one of the three oldest civilizations in the world.

It is impossible to date Cretan events accurately as long as its inscriptions remain undeciphered. To all intents archæologists return here to the realm of prehistory. But an amazing amount of knowledge has been gleaned from the excavations in southern Greece, at the site of ancient Troy on the Hellespont, in Crete, and upon the other islands of the Ægean. The development of its art, especially its pottery and metal-work, has been traced in great detail. Luckily the Cretans traded with the Egyptians from an early date. There are frescos showing these visitors from overseas, and the works of art of the two peoples appear side by side. Thus certain periods of production in Crete have been dated with accuracy.

The Egyptians seem clearly to have developed before the Cretans. Egyptian letters appear in the Cretan alphabet, Egyptian design plainly influenced Cretan art. But it is not at all accurate to say that Cretan civilization was largely derived from Egypt. What these islanders took, they made their own. Even when taking an Egyptian design bodily, they put in it so much of their own vigor and life that it became a new thing.

The Cretan civilization runs roughly from 3000 B. C. to 1500 B. C.—or a century or two later. Bronze appears at the earlier date above a very deep layer of polished stone tools. The Neolithic Age in Crete is estimated to run back as far as 10,000 B. C. While Egypt was building the pyramids and Semite was succeeding to Sumerian in Babylon,

there seem to have been only small towns in Crete and no great monuments. The archæologists have made out two great periods of prosperity and power, one around 2000 B. C. and one around 1500 B. C. The first was contemporary with the great Hammurabi in Babylon, the second with the great temple period in Egypt. Crete and Egypt reached their Golden Age together. In each, great palaces were built and works of high artistic ability were produced. Then came decline and darkness. The palaces were burned and abandoned, the art became cheap and poor. The invaders from the north overran the old civilization and wiped it out so completely that a thousand years later their joint descendants, the Greeks, had no memory of this extraordinary past save vague myths which seemed to have no historical importance.

There was the legend of Theseus and the Minotaur, for example. Theseus was king of Athens, the Minotaur a monster in Crete, having the body of a man and the head of a bull. Every nine years King Minos of Crete required the people of Athens to send seven youths and seven maidens as a sacrifice to the monster. They were fed to the Minotaur in his Labyrinth. Theseus undertook to slay the Minotaur and succeeded. He escaped, thanks to a ball of yarn which Ariadne (daughter of King Minos) fastened at the entrance of the Labyrinth, by which he found his way.

King Minos is an historic character; the rest has passed for fable. But the discoveries in Crete have suggested that the legend was built on a basis of fact. The bull was plainly the sacred beast of Crete. He appears again and again on the walls of the palace at Cnossus. There is one picture which shows a magnificent charging bull between two maidens, and a youth vaulting over the bull's back. This seems to be an acrobatic performance, perhaps something like the modern bull-fight of Spain. On the famous

gold cups of Vaphio, among the most beautiful metal-work ever produced, are more bulls, some in the act of being caught in a net. As for the Labyrinth, the great palaces of Crete are a maze of rooms at different levels. The architects of Crete knew nothing of the simplicity and balance of design which appeared later in Greece. Their work resembled much more the palaces of Egypt and farther east; the oriental palace, however magnificent, is apt to be a jumble of rooms. Now if one conceives that in distant, bloodier days Athens was in fact required to send youths and maidens to be sacrificed at Cnossus, and that a great hero named Theseus made his way through the mazelike rooms of the palace there, found and killed the king who commanded the sacrifice, there is a basis of fact out of which the legend of the Minotaur might have been built. Perhaps discovery will confirm this interesting guess of the archæologists and bind the beginnings of Greece more closely than now with this ancient and vivid civilization.

The Cretans developed a writing of their own, from the picture-stage down to what appears to be an alphabet. Unfortunately, not a word has as yet been translated. It is the only alphabet that was ever originated in Europe. That it may have been, directly or indirectly, the source of the Greek alphabet, and thus of all our modern alphabets in the West, has been suggested as a possibility. No decision upon this point is in sight. The first paved road in Europe ran between palaces at Cnossus. In the throne-rooms of the great palace stood a simple, remarkably beautiful stone chair, the oldest throne in Europe. (It suggests the Gothic art of the Middle Ages in design.) There were little clay vases and kettles, as if made for a doll's house. What is perhaps most amazing was the modern plumbing of the palace at Cnossus. There were pottery drain-pipes six inches in diameter and an elaborate and sanitary system of drainage. This is not the oldest plumbing in the world, for

copper drain-pipes were used in Egyptian temples and palaces a thousand years before. But the sanitation was better at Crete. It was equalled again only at Rome and in modern bathrooms.

There was a later and lesser civilization in southern Greece. At Mycenæ the remains of a vast stone palace have been found. These were excavated before the palaces at Crete, and for a while the whole civilization was called Mycenæan. Another name sometimes given to it is Minoan, after King Minos. Ægean is the most accurate name, for it suggests the wide extent to which this civilization covered and encircled the Ægean Sea. In its flowering, around 1500 B. C., Cnossus in its gay magnificence looked across the sea to the mainland where stood the more sombre palace of Mycenæ, and to the northeast in Asia Minor on the Hellespont where rose the high walls of Troy.

These were islanders or coast-dwellers, and the sea was a large part of their lives. The impression of a seal found at Cnossus shows a great horse travelling in a one-masted boat. There are oarsmen rowing as in an Egyptian boat. The workmanship of this seal shows that it dates after 1500 B. C., and perhaps the event celebrated was the coming of the horse to Crete. (The horse reached Babylon soon after 2000 B. C., Egypt about 1750 B. C., it will be recalled.) On another seal is a boat with two crescent moons above the mast, which can be taken to mean that the owner was celebrating a two months' voyage. Beyond question the Cretans were a seafaring folk, and there seems no doubt that they were the first great mariners of the world.

The geographers can offer small explanation for this early civilization. Crete and the other islands of the Ægean are heavenly spots, bathed in sunlight, brilliantly beautiful. Inland there are lofty hills—Mount Ida in Crete is 8,000 feet high—between which lie small plains

where shepherds may feed their flocks of goats and sheep. There is fertile land for grain, there are vineyards and there are olive-trees, as along the whole north coast of the Mediterranean. In the sea are fish and sponges, and on the horizon lie other islands but a few hours distant. Life is rich, varied, and beautiful. No wonder that a gay and laughing civilization grew up here utterly unlike that of the more rigid people of the Nile.

But why one of the first civilizations here? There is no sufficient answer in geography. There is no need for irrigation in Crete. It is a lazy man's land. The formula which seemed to help explain Egypt and Babylon gives no aid. The moral is clear. One must not look to geography to explain everything. The Ægeans were a great and precocious people because it was in their blood so to be. In the end, race is always the controlling factor. Climate and natural resources can develop or limit, help or hinder; they can neither create nor destroy genius.

That genius of the Cretan people seems to have grown to maturity, to have flowered long and gloriously, and then faded. Mention has been made of northern barbarians overrunning the island, of palaces burned and abandoned. That is true; but years before, the decline of Cretan art and architecture is plain. When the invaders arrived some time after 1500 B. C., and catastrophe was in the air, Crete was ripe for downfall. The fact is to be noted for later comparison. It is a simple formula to speak of barbarians wiping out a high civilization and setting back the clock by centuries. But here, at any rate, the high civilization had long declined, had been dying slowly for years, before the violent end arrived that scattered its ashes to the winds.

There followed—roughly from 1250 to 750 B. C.—a period of Dark Ages much like the Dark Ages in Western Europe from 400 to 1000 A. D. It was the period when the barbarians from the north were mingling with the older

peoples of the Ægean, becoming fused into a new breed of men. There is not much history in these years; yet what exists is of great interest for the light it sheds upon the Greeks. Since it is an essential part of their background, it is best told in the Greek story.

Meantime, around the year 1500, great events were beginning in the north, in Asia, and in Europe. Thus far the story of civilization has been enacted wholly in warm and southern lands. In Crete the scene shifted somewhat to the north, but the peoples were southerners. Now for the first time northerners entered upon the scene. They came as destroyers, they remained as contributors to a new civilization.

There are many clues as to the identity of these barbarians from the north. Crete was not the only ancient civilization to be assailed by them. There were the Kassite barbarians who dropped down from the hills of Persia upon the merchants of Babylonia, for example. It was a period of tumult and disturbance throughout the civilized world. It is important to see if some unity cannot be discovered in this movement of many peoples. Who is on the march, and whence and why?

CHAPTER XI

THE FIRST CIVILIZATIONS OF THE FAR EAST

THERE loom up dimly in the meantime, far to the east, the vast and mysterious peoples of China and India. Dates and details are misty. Modern science of the Western world has scarcely touched China. There have been few Eastern archæologists to dig for stone hatchets and ancient inscriptions. The modern point of view of Western historians, distinguishing sharply between myth and fact and seeking proof for everything, has barely begun to enter the Eastern mind. The field is so vast that archæologists have as yet accomplished little. There are left chiefly the traditional records. These are clearly a mixture of history and myth, and at what point myth ceases and history begins is a puzzling problem.

Estimates of historians vary considerably. Any dates must be regarded as tentative, subject to revision. There is evidence, however, against the extreme antiquity of China. Her civilization may not be the oldest or rank with the

oldest. Egypt and the Sumerian civilization in Babylonia perhaps preceded her by a long stretch of time, even 2,000 years. The beginnings of Chinese civilization seem to belong somewhere in the second millennium, between 2000 and 1000 B. C. Her people then developed a system of picture-writing which had probably become a system of syllabic signs by 1000 B. C.

Thus China may be tentatively regarded as beginning midway between the first civilizations at the eastern end of the Mediterranean and the next civilizations that followed in the same region. Her rise seems to have come after Egypt, Babylon, and Crete, before the later Semitic civilizations (Assyria, Chaldea, Phœnicia, and Palestine), and longer before those non-Semitic civilizations which resulted from the descent of the first northern barbarians and which lie ahead of us (India, Persia, Greece, Rome). But future excavation in the valleys of the great rivers of China may disclose far earlier civilizations, rivalling or surpassing Egypt or Sumer in antiquity.*

The beginnings of Indian civilization hold hardly less uncertainty. Lately discovered evidence has pushed back the dates of the Stone Ages in India several thousand years. It is conceivable that the first achievements of civilization may have been accomplished there at dates equalling the pioneer records of Egypt and Sumer. At present India's early story is but beginning to take shape, and here again a vast section of the human record remains in doubt.

Race links India with China, since both peoples have brown or yellow skins. Both nations are situated in the Far East. Buddhism has been a powerful force among the peoples of both countries. These are strong reasons for presenting their histories together. Yet geography has cut

* It must be reiterated that archæologists have still to search in the ancient deltas of China and that these preliminary guesses may face much' revision. Moreover, India is certain to run China a close race in antiquity, may well outstrip her. The whole problem of the Far East is one of the least studied and least settled from the historian's point of view.

off China from India by impassable mountains and from Europe by dreary wastes, while leaving India more readily accessible from the northwest. As a result the early Indian story is repeatedly and intimately connected with that of the peoples to the west. In prehistoric time the Sumerian forerunners of Babylonian civilization may have come out of the east. At the dawn of history a people of northern origin invaded India from Persia. In the Christian era Mohammedans from Arabia conquered and colonized far and wide in the great peninsula. In the end India remained Eastern, but because of these important bonds with the Western record it is simpler to relate Indian beginnings in close connection with the Mediterranean and European story. In thus reserving for the moment the account of Indian origins, we must not forget their great antiquity.

Efforts to relate China to these other civilizations have failed. There have been many theories. Resemblances of culture to Egypt, Babylonia, Assyria, India, have been elaborated. China remains a chapter apart in the history of the world. The earliest Chinese hieroglyphics show eyes tilted up at the outer corners exactly as in the Chinese face to-day. The oldest Egyptian hieroglyphics show level eyes as throughout the Western world. Similarly the first Chinese that history knows were almost beardless and had lank, black hair as to-day. There is no suggestion of the curly, bearded faces of the Assyrians and other Semites. Chinese types vary more than Western eyes perceive, but certain Mongolian features unite in the prevailing type. The Mongolian is short of stature; the head is broad; the nose is broad and flat; the hair is black and straight and grows sparsely on the face; the eyes slant upward at the outer corners; and the skin is yellowish, though varying all the way from light yellow to dark brown. Racially the Chinese are greatly mixed. None the less, the peculiar features which they present set them off from the Western

world and point to a long separate history. Nor has that type changed noticeably in historic times.

The parallel with Egypt recurs to mind. Egypt, by reason of its location, was the most isolated nation of the Western world in early times. For more than 3,000 years it flourished in peace and quiet with but one serious invasion. It developed a high and interesting civilization that never passed beyond a certain point. In particular, it halted its writing at the stage of syllable-signs, although inventing an alphabet.

The Chinese civilization, beginning 2,000 years after Egypt, has now lasted over 3,000 years, and has halted in much the same fashion as did Egypt. It made a magnificent advance in the first 2,000 years of its civilization; certainly as great as Egypt or Babylon or Crete; perhaps greater. Since then it has halted much as Egypt halted after the Temple Age around 1500 B. C. The odd coincidence that it never carried its writing to the stage of an alphabet has been noted before. Intercourse with the West, through commerce, education, and missions, has now been active for a half-century, and may, conceivably, change the course of China radically. Left to themselves, her people remained stagnant for the last 1,000 years.

It is tempting to think that the isolation of China has had something to do with this peculiar history. To the east lies the Pacific Ocean, vast, uninviting. The Chinese have never been a seafaring people. The snow-capped Himalayan Mountains cut off all communication with the civilizations to the southwest. China has never been invaded from this direction. It is more open west and north, and it is from the west and north that invasions have come.

But the vast size of China has protected her much as the vast size of Russia has served as a defense in modern times. China is larger than all Europe, or all the United States and Alaska. (This comparison refers to China at its pe-

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riod of full growth when Mongolia was included.) Here is where the parallel of Egypt becomes inadequate. China is no tiny area like Vermont with a population at its greatest of 10 million, but the second largest nation in the world in area (Russia with Siberia is twice as large), and bearing a population to-day estimated at between 300 million and 400 million. (China is thus, roughly, a little larger than India, twice as great as Russia and Siberia, three times as great as the United States, more than all Europe.) There are no early figures as to the population of ancient China, but here is plainly the growth of a civilization on a scale so great as to defy comparison with the little river and island civilizations to the southwest. If one imagines a primitive civilization developing over an area as large as the United States, and preserving a basic unity, of race and language and customs, throughout 3,500 years, one faces the problem which confronts the historians of China.

Probably the Chinese civilization began in river-cities like those of Egypt and Sumer. To this day the life of China centres about its rivers, and especially the two great rivers, Hwang-ho (or Yellow River) to the north and the Yangtze-kiang in the centre. The former runs through a great plain of yellow soil brought by the stream, and offers somewhat the same opportunity for irrigation as the Nile and Euphrates upon a far greater scale. To the south the country is more hilly, but the same intensive agriculture, with spade and irrigation, prevails here as in the plain of the Hwang-ho. Where the first centres of civilization were located, whether north or south, and how closely there is a parallel with the river cities of the Nile and the Euphrates are still matters for speculation. There is a great variety of climate in China—Peking in the north and Canton in the south are as unlike as New York and Havana—and it is certain that many types of man were present.

It seems clear that there were a large number of inde-

pendent city-states before 1000 B. C., and that the emperors of these early dynasties had more religious power than political. (The reigns in China are grouped in dynasties, as in Egypt.) The Feudal Age this early period is often called, from its resemblance to the European system of the Middle Ages. The first great rulers belonged to the Han dynasty and reigned roughly from 200 B. C. to 200 A. D. With them began the story of China as a great united nation. In art, in government, in toil, in almost every feature of life, the peculiar institutions of the Chinese people were firmly established.

Of all these institutions, none is more typical of Chinese character than one man, the great Confucius. It is usual to speak of Confucianism as a religion, and it has certainly served the Chinese in place of a religion for 2,500 years. It is hardly a religion at all, and it can be argued that the Chinese are not a religious people. Yet they are a highly moral people, honest, loyal, hard-working. Confucius was the perfect expression of this side of Chinese character, and it is largely through following the rules of life as laid down by him that China has remained stolidly irreligious and admirably moral through all these centuries.

Confucius was not a prophet of a religious faith like the Hebrew prophets, nor the prophetic founder of a religion like Buddha and Zoroaster. He was a sage. His books are full of pithy wisdom, good, practical, high-minded sense. The golden rule of the Hebrews in the Old Testament was the central rule of his doctrine. He phrased it: "What you do not like when done to yourself do not do to others." The rules in "Poor Richard's Almanac" which Benjamin Franklin wrote are more canny, less noble, crudely materialistic by comparison, but if the American people learned them all by heart as part of their education and faithfully made them their rules of life, caring more for them than for religion and churchgoing, the result might somewhat resemble the Chinese character.

Every doctrine of Confucius made for conservatism. Subject must submit to ruler, wife to husband, son to father, etc. He gave the strongest support to that reverence for ancestors which has been the most prominent form of Chinese worship since time immemorial. There is nothing highly spiritual in this attitude. The spirit of the dead man or woman is believed to watch over the fortunes of the family—if properly propitiated. So offerings of meat and drink are made to an ancestral tablet. There are no great stone tombs to the dead as in Egypt, nor is there any effort to preserve the body after death. There is, however, for somewhat different reasons, an equal respect for the dead and a long-continued regard for them. Here is clearly one of the most conspicuous symptoms of Chinese conservation. It begins during life, for expression of respect for parents is nowhere else in the world carried to such lengths. A son who exposed himself naked and allowed mosquitoes to feed upon his body so as to satisfy them before his father was ready for sleep is the hero of a standard fable. When parents are seriously ill, children pray that a certain number of years may be cut off their own lives and added to those of their parents. When parents die, mourning lasts for twenty-seven months, during which period the children may not marry, may not hold public office, may not play musical instruments.

The character of no people is as simple as this description of Confucianism would lead one to suppose. Confucius lived around 500 B. C. Before him, or perhaps contemporaneously with him, lived the Old Philosopher who founded Taoism. He was as unpractical as Confucius was practical, preaching a vague spiritual ideal rather than common-sense rules. His doctrines served to satisfy the religious needs of the Chinese in these early days. Much later Buddhism entered China, and all three doctrines—Confucianism, Taoism, and Buddhism—now flourish side

by side. The Chinese have always been profoundly superstitious. They believe in evil spirits, and dread especially the spirits of those who have been wronged. That is why the worst revenge a wronged person can wreak is to commit suicide on the doorstep of the person who has wronged him. Such suicides are not infrequent. Houses and graves have to be arranged just so to avoid bad luck. Inside the front door of most houses is a screen which compels any one entering to turn right or left. The object is to keep out evil spirits, who can move only in straight lines. This is a description of China to-day, but it is not far from a description of China under the Han dynasty—except that Buddhism had not then taken the predominant position that it now holds.

A word must be said about the intellectual ability of the Chinese. Even at this early date a great interest in literature prevailed, and the books of the past, the classics, were faithfully studied. But the main interest of the Chinese was practical. The Chinese speculated little, they accomplished much. Iron came into use in the fifth century B. C. —only a few hundred years after its discovery by the peoples of the eastern Mediterranean. Already the Chinese were making beautiful bronze-ware and painting beautiful pictures. They built the Great Wall along the northern border, some 1,500 miles long and from 20 to 30 feet high. This was an enormous task, even though it cannot be compared with the Egyptian stone-work in engineering skill. They built water-wheels for irrigation. They were and are marvellous cooks. (Only the French are supposed to surpass them.) But if the Chinese were ingenious and practical, they seem to have missed a number of great inventions by a narrow margin and to have ignored the results of others which they actually made. It was long supposed that they invented the compass, but that distinction is now denied them. They used powder for fireworks in the

seventh century A. D., but did not use it for firearms till the fifteenth century. They invented movable clay types for printing soon after 1000 A. D., but never made great use of them.

These events in China run well beyond the dates reached in the Western story. By the time of the Han dynasty, not only had the great Persian Empire risen and fallen, but Greece as well. The Han dynasty can be thought of as roughly contemporaneous with the Roman Empire. Any comparison of achievement between nations is largely a matter of opinion, but there can be more or less agreement on certain points. The Chinese civilization of this time is entitled to rank with any of the early civilizations to the southwest save that of Greece. As for a comparison with the other civilizations of the eastern Mediterranean, China was surpassed in certain respects, in art by Egypt, in religion by the Hebrews and by the Persians, in writing by the Phœnicians. It had an all-round record of achievement, in art, in industry, in government, in character, that is unique. By developing respect for custom both personal freedom and orderly local government have been achieved to an extraordinary degree. Also in its success in unifying the culture and customs of a great people, it far surpassed anything of the Mediterranean world, either then or since, for the matter of that. The great empires of Egypt, Assyria, Chaldea, were temporary captures of territory speedily ended. The empires of Persia and Greece were at bottom no more substantial. The greatest of all Western empires, the Roman, endured but a few hundred years. All were simply bundles of assorted peoples held together by might and lacking any inner unity.

If China had followed the Mediterranean and European precedents, it would have been a group of a dozen or more peoples. For reasons which no one understands, China took the other path. While developing many spoken dia-

lects as different as Italian and Spanish and French, her people have maintained one written language for 3,000 years. Often weak in the externals of empire, in armies, in government, the Chinese people have maintained an extraordinary loyalty to one another and exhibited unique vitality. Conquered again and again by Mongols from the north and west, the Chinese have absorbed their conquerors and remained Chinese.

The contrast with the rival nations of the ancient Mediterranean and of modern Europe is complete. This theme will return when the later history of China is reached. From the beginning China turned toward this unusual type of inchoate unity and toward a conservatism that hampered progress and ultimately spelled stagnation. The peculiar geography of China, its isolation and vast size, offers a partial explanation, but leaves far more mystery in the character of this strange and able people.

CHAPTER XII

THE COMING OF THE NORTH

THE story returns to tumult and confusion around 1500 B. C. at the eastern end of the Mediterranean. This ancient world began at the crossroads of three continents, but henceforward the share of Africa will be small. In these centuries following 2000 B. C., when the barbarians of the north first come into view, it is a joint story of Asia and Europe that unrolls. The scene widens vastly. It stretches from India in the east across Persia, the lands around the Caspian Sea (where Europe and Asia meet), past Greece and Italy clear to the British Isles, a front of 6,000 miles.

Along that front are certain peoples that vary enormously in appearance. They are of many colors, of all heights, of every shape of skull. They speak scores of different languages. Yet when they wish to speak of a brother, a mother, or a father, they use words amazingly alike. Take this comparative list running from west to east:

West				East
English	Latin	Greek	Old Persian	Sanskrit, the Ancient Language of India
brother	frater	phrater	bratar	bhrata
mother	mater	meter	matar	mata
father	pater	pater	pitar	pita

Some of these languages are still used, others are not. The list could be extended to cover almost all Europe today. At the eastern end, where Sanskrit is no longer spoken, the resemblance still holds good in modern Hindostanee. Here is a list for modern Europe:

English	Norwegian	German	French	Russian
brother	broder	bruder	frère	brat
mother	moder	mutter	mère	mat
father	fader	vater	père	....

The list of words thus scattered from Ireland to the Ganges is considerable. Outside the names of the family there are names of domestic animals (including the horse and cow), the words for wagon and wheel, names of trees, the name of a metal, the word for weaving and other familiar words of primitive herding, farming life. It surely is not by chance that these resemblances occur. The question is what they mean. Is there a blood-relationship between Europeans and Indians or Persians? Is all Europe of one race because its languages are thus related? It was the study of Sanskrit that led to the discovery of these resemblances, and for a century philologists have worked upon the problem. In geology there is a mountainous back-bone which runs east and west from the Pyrennes in Spain all the way to the Himalayan Mountains in India. It now appears that there is a back-bone of language that parallels these great mountains from sea to sea. It is important to understand that back-bone and what it signifies.

I. THE INDO-EUROPEAN PROBLEM

When the kinship of Sanskrit with European languages was discovered, it was at first viewed as the parent language of the whole group. Upon this basis a whole theory of race was built. It was assumed that a people had lived in southern Asia who spoke a language somewhat like Sanskrit. This people was called the Aryan people, which was the name of the ancient Persians. These Aryans were conceived as powerful and well advanced toward civilization. Some time after 2000 B. C. they marched westward in great numbers, overruning all Europe and imposing their language and civilization upon the entire continent. Every people of Europe from the Greeks down were Aryans. Americans of to-day would be members of this great Aryan race.

This conception has been slowly modified and is now largely abandoned. It is certain now that Sanskrit is not the parent language but merely a sister of the other tongues. That there was once a parent tongue from which all the Indo-European languages are descended, some remotely, some closely, is considered certain. But where it was spoken and who the people were who spoke it are matters of great doubt.

The original theories were the work of philologists. Of recent years, with the development of archæology and anthropology, new points of view control. Language is now viewed as but one of a number of evidences of racial movements, and a rather deceptive form of evidence at that. Races mix readily, languages with difficulty. The mere fact that all these peoples of Europe and southern Asia speak related tongues proves very little as to race unless checked by shapes of skulls, artistic remains, etc.

The tendency of modern opinion has been toward two conclusions. The first is to doubt that the cradle of the

parent tongue was in Asia and to consider the possibility that it was in Europe. The second is to reduce the movement of people involved and minimize the influence which they had upon Europe, other than in the matter of language. The theory of a great Aryan people coming out of Asia to civilize Europe can no longer be maintained. Whether the bearers of the Indo-European tongue came originally from Asia or not, whether they were one race or a mixture of races, they were barbarians with no civilization to transmit. They brought a great gift in their language, and undoubtedly brought new life into the lands they entered. European civilization was born of their northern barbarian vigor and the well-developed civilization of southeastern Europe.

Modern Europeans speak Indo-European languages, but they are not Indo-Europeans or Aryans; they are Europeans, descended chiefly from peoples who were probably living in Europe long before any Indo-European language existed. That is why the name Aryan has been discarded by modern historians as a name for these languages. It has for generations been tied up with the idea of a great Aryan people of whom Europeans are all descendants. The name Indo-European has been adopted simply to state the fact that the speakers of these languages range from India to Europe. That is all it means. It leaves one free to consider the question of race separately and with an open mind. This matter of names may seem a small one, but it is not. Words through long usage become incrusted with old theories and it is almost impossible to wash them clean.

Though the cradle of the first people speaking an Indo-European language cannot be definitely located even as between Asia and Europe, the sort of region within which it must be located is known and can be defined on the map with some probability. Just as the Semitic tribes came out of southern grass-lands in the Arabian Desert, so these Indo-

Europeans came out of northern grass-lands. The northern plains divide into two areas north of the Caspian Sea. The western is to-day southeastern Russia. It is part of Europe. The eastern is in Asia. The Russian name for these treeless plains is steppes. They correspond to the prairies, the grazing-lands, of western America. To this day they are largely inhabited by nomads and seminomads, adventurous cattlemen, fine horsemen, the type of man from whom Russia drew her famous Cossack cavalry.

The story of the Semites and the Arabian Desert is here repeated with grave differences. First of all, the climate instead of being semitropical is as cold as Canada. One can scarcely overestimate the effect of this difference upon the character of a people. It is because of that importance that this chapter is entitled "The Coming of the North." If the story of China, separate from the main stream, is left out of count, it may be said that civilization began in the south (just above the tropics) and spread slowly northward. Heretofore the civilizations have been southern in their origin. Now the more slowly developing northerners begin to play their part. As a result, progress moves slowly west and north in Europe.

Unfortunately, the greatest of the early civilizations, the Egyptian, could not spread upon its own continent. Cut off by the desert and the equatorial heat, it died in its tracks. There was no advance south and west. East and south there was some advance, as will be seen, across Persia and down into India. But desert and mountains prevented a farther thrust into Asia, and climate sapped the energy of the best hope of progress, the Indian people.

Thus, the civilization that started at the meeting-point of the three continents, Africa, Asia, and Europe, found its free and full development only in Europe. That is why the bulk of this record will be the story of Europe, and the march will be west and north along the Mediterranean,

north to Britain and Scandinavia, and finally overseas to the Americas and around the world.

Being northerners, these early speakers of Indo-European tongues of the northern grass-lands had two great advantages over the Semites: they had the horse and the cow. The flocks of the Arabian Desert were of sheep and goats. The beast of burden was first the ass, later the camel. The horse can be taken as the symbol of these northern peoples. Wherever it arrives, one can be sure that northerners are not far behind. Its effect upon the Indo-Europeans was to enable them to move with far more ease and rapidity than could the dwellers in the Arabian Desert, and probably to be more roving and adventurous than the early Semites.

Also the northern grass-lands, while desertlike in sections, run gradually, especially in the west, into inviting forest-lands and park-lands. There is no sharp division between "east of Jordan and west of Jordan." The promised land is all about, to be had for the asking, urging the wanderers to try a crop. Therefore, many of these Indo-European peoples probably passed at an early date into the half-herding, half-farming stage of the lake-villages of western Europe. They were not lean, swarthy wanderers in a thirsty land, like the ancient Semites, so much as roisterous, rough-riding cowpunchers whose wives and children dug gardens on the edge of the steppes.

The stage at which the original Indo-European tribes were living before they split can be roughly estimated from the list of words common to all the languages. They point to a people beyond the nomad stage and well on the road toward farming and village life. The word for a metal probably points to the rise of copper—which is to say that they were at the end of the Neolithic Age.

This original home of the first users of an Indo-European language may have been almost anywhere in these

northern grass-lands. A favorite hypothesis at the present time pictures it in the steppes of southern Russia. But that is only one of many theories. One extreme suggestion would place it in Germany and Scandinavia and conceive the whole movement to have been an easterly one. But this has not received any considerable support. There are more solid facts when the first great dispersal arrives. This was probably along the whole length of the northern grass-lands, east and west, and there may have been many movements in both directions, some rapid, others slow. Here were formed the first variations in character and physique, and here took place the first variations in language from the parent tongue.

Since these grass-lands are more or less divided at the Caspian Sea, travel between the two areas, while not difficult, is not as simple as travel within each area. The Indo-European languages divide naturally into an eastern and a western group, and it is an interesting hypothesis that they were thus developed upon the two more or less separate areas of grass-land. The eastern languages have been spoken principally in Asia, and all lie to the east of the other group with one minor exception.

Such was the supposed situation around 2000 B. C. when the great movements of Indo-European-speaking peoples began. Perhaps drought was the cause here as in Arabia; but it may have been drought farther to the north or east that sent unknown peoples driving down upon the grass-lands. Such a wave of migration may be felt across a continent precisely as a wave crosses an ocean, and one need not suppose that these particular grass-lands dried up, however likely that hypothesis may be. Accurate dates are impossible. It was not one swarming but rather a steady drift of tribes that developed, and it extended from India to Italy. One can take 1500 B. C. as the rough date by which these advancing northerners had arrived in such

numbers as to change the course of history along this entire front.

East of the Caspian Sea the horsemen of the north split in two main groups, the eastern pushing southeasterly into India, the western turning south and west into Persia. West of the Caspian Sea they pushed southward into Greece and Italy and westward to the Atlantic. It will keep the general movement clearer if these movements are taken up in geographical order, beginning in the east and working westward. To a certain extent this follows chronology, for Indo-Europeans did not reach the Atlantic till several centuries after their arrival in India.

2. INDIA

These easternmost horsemen of the northern grass-lands went riding down over the mountains into India driving their cattle before them. They were light-skinned, and they came among a large population of dark men. They arrived with northern energy and will in a land of tropical heat, an intensely fertile country, yielding enormous crops for the asking, a paradise by comparison with their northern prairies, but a paradise fatal to energy. The inevitable happened. They were swamped by the dark-skinned men of the soil; they became lax and fatalistic, as must any people to exist in such a climate. That is one of the limitations of climate which man has been as yet unable to conquer. The northerner looks down upon the man of the tropics and boasts of what he would do with such a fertile land. But, if he makes the attempt, he becomes as the southerner—or dies. The British rulers of India in modern times have kept their energy by remaining sojourners only. They cannot settle permanently in India.

But before these Indo-Europeans sank in the ocean of dark men, they left an immortal legacy to India and to the

world. They were not civilized, they had no writing, and they came among a people still uncivilized. They progressed but slowly. As will appear, the Indo-Europeans never originated a civilization anywhere. They never invented an alphabet or created a great work of architecture. Always the major sources of civilization came from the south. Their one great achievement in India was to compose the Veda, a collection of beautiful hymns. Partly these describe their adventures as warriors and cattlemen; chiefly they are a declaration of religious faith in the beauty and unity of the world, holding the pantheistic belief that the universe is, in fact, God. The Vedas are a strange medley, of unequal merit, composed by many poets over a large period of time from 1500 B. C. onward and not written down till after 500 B. C. They were written in Sanskrit, the ancient language of these Indo-Europeans. At its best it is great poetry, and the faith expressed is noble and exalted. The religion was called Brahminism, Brahma being the name of the all-embracing God. The priests were called Brahmins.

This gift of poetry will be found running westward throughout the Indo-European peoples. It was their one art. Their language must clearly have been a great language to conquer far and wide as it did, and it is interesting to speculate how large a part the bards, who composed these hymns and songs, and recited them from generation to generation, must have had in forming the tongues.

Beautiful as was this religion of the Vedas, it had not a strong popular appeal. The great religion created in India was Buddhism, which was founded around 500 B. C. The two faiths lived side by side in India for many centuries. But it was Buddhism that conquered far and wide in the East. Though finally driven out of India, it is to-day the most widely accepted of all faiths. More than a third of the human race are Buddhists, one-fourth are Chris-

tians, and one-fifth Mohammedans. These are the three chief religions of the world. The cleavage between East and West is as old as history, and it is difficult for one to understand the other. But as contacts increase, the importance of mutual appreciation grows, and since Buddhism is to the East what Christianity is to the West, to understand something of its quality is to see a long way into Eastern character.

The founder of Buddhism was named Gotama and he lived in India around 500 B. C. Buddha is to the Indian the general name for a preacher of truth who appears at intervals to purify the world. Gotama was the last such preacher, and he was known as Gotama Buddha, or simply the Buddha. In English usage Buddha means Gotama Buddha and no one else.

Buddha was a rich man and the son of a chief. At the age of twenty-nine he abandoned his riches and his family and went off in beggar's rags to live the life of a hermit and seek to learn the truth by self-study and reflection. He lived in a time when the old childlike wonder of the Vedas toward nature had been wrapped by the Brahmins in endless words and theories. The letter had killed the spirit of the ancient religion, and the time was ripe for a new revelation.

The doctrine that Buddha discovered and urged by word of mouth—Buddha, like Christ, never wrote down his faith—was unselfishness, but unselfishness carried to a logical extreme that individualists of the Western world have difficulty in comprehending. By constant meditation and self-analysis and control of mind and desires, one could reach a habit of mind, he preached, in which one would cease to desire anything selfish. One would forget oneself completely. What Westerners think of as self would cease to be. As a result would come perfect peace and joy. This state he called Nirvana. About this word much misunder-

standing has arisen in the Western world. It was for long taken to mean a sort of eternal unconsciousness, a blissful death. It is often used in Western thought as a general term for oblivion. As a matter of fact, Buddha seems to have meant by it a peace of mind that could be reached in life, and it was not at all a peace that prevented life or ended its activities.

Buddha said nothing of god or gods. He provided for neither priests, nor temples, nor sacrifices. He was concerned in living a good life rather than with elaborate theories about the universe or the externals of worship. He accepted from Brahminism the theory of transmigration of souls—that at death we are born again as human beings or pass into the form of animals, pigs, dogs, etc.—but explained it in a highly spiritual fashion to fit his theory that denied the existence of souls.

Such was the highly moral and practical faith of Buddha. In the hands of the priests and in the hearts of the Indian people it quickly became a very different thing. They stressed the transmigration of souls, which was not Buddhistic in its origin at all. Thus a priest could frighten one of his people with dread of becoming a pig. All the old gods were revived, more were invented, and a ritual of sacrifice and worship was developed. Worst of all, they viewed the Buddhist doctrine as an escape from the world, as a plea for an inactive, solitary life.

Now it is true that these corruptions were not in Buddha's mind. But a religion is what it becomes when applied quite as much as what it was in its creator's mind, and it is clear that some of these corruptions were due to weaknesses inherent in Buddha's doctrine. By preaching no clear doctrine of god he left the door wide open for belief in every manner of god. (The Hebrew religion was strong precisely at this point where Buddhism was weak.) Furthermore, the Buddhist doctrine of meditation and self-

analysis could not fail to promote the silent, passive, inactive type of human being. Buddha was a true man of the south in this doctrine and his religion a southern faith. Here is no belief born of rough-riding on the northern prairies. The inertia of the tropics speaks, the habit of a contemplative land where physical exertion was unpleasant and largely unnecessary. It is impossible to call such a religion Indo-European. There could not be a better illustration of how completely the northern blood of the horse-tamers had been engulfed in the fatalism of the south.

One further matter remains to be mentioned—caste. Long before Buddha the people of India were divided into four castes or classes, with the Brahmins, the priests, at the top, the fighting men next, and so on down. Below all the castes were the Pariahs—a word now used in English for any social outcast. There have been and still are social classes in every country of the world. But nowhere have the classes been as strictly preserved as in India. There the members of one caste may not marry into another caste or even eat with a member of another caste. To commit a breach of caste rules is to become a Pariah, a hopeless outcast. How this rigid system grew up is not known. One theory has held that it was the invention of the Indo-European invaders to keep their blood pure amid the dark races of the soil. But this view is not altogether certain. In any event, it does not explain the extraordinary hold which the caste system obtained and still keeps upon India. There are more classes than ever in India to-day and the rules are extremely strict.

The caste system seems cruel and unjust to the Western point of view, but it plainly serves a purpose in India. It gives every Indian (not a Pariah) a group of comrades and brothers. The caste serves as trade-union, lodge, and as a bond of fellowship stronger than any with which we Westerners are familiar. It is harsh and cruel in its re-

straints, but it gives something in return. Perhaps here, too, one can read the effect of climate. India, for all its easy crops, is a harsh and cruel home. Its rainfall is heavy but treacherous. Famines have occurred with pitiless regularity. As recently as 1877 five million people died of hunger. No wonder its religion is tinged with fatalism, and man tends to withdraw within himself. No wonder its society is organized on a basis that gives a minimum of freedom to the individual and a maximum of mutual aid.

In the vague records of these kingly, priestly ages of ancient India before the Christian era of the Western world, the name of one ruler, Asoka (reign, about 264–227 B. C.), is memorable. This prophet and idealist among emperors began as a warrior, but being converted to Buddhism abandoned conquest and ruled his great empire according to ideals far in advance of his time. He carved his faith in great stone monuments which still stand, and devoted his life to humanitarian reforms, to use modern phraseology. He opposed capital punishment, he dug wells and planted shade-trees, he founded hospitals. Too little historical research has been done to place these early centuries of India in a clear light. But here plainly was a great soul and a great leader.

A huge and strange people thus slowly advanced into civilization here in the south, as Egypt and the Semitic civilization faded and Greece leaped upward. They possessed the gift of words and had already achieved a great literature. What was more, they had already given the world two great religions, one of which was destined to become the most powerful of all faiths. Whatever their later destiny, here was surely a mighty achievement.

By the chance of an invasion of northern barbarians, relatively few in number but powerful to command, the bulk of Indians learned an Indo-European tongue, and the descendant of that tongue, Hindostanee, is still the prevail-

ing language of India after 3,500 years. But in the veins of the Indian people flows but a small stream of northern blood.

3. THE MEDES AND PERSIANS

Persia flares up like a bonfire in ancient history, to fade slowly and leave but embers of her former greatness. There has been no adventure as swift, no decline more complete.

Her people were few in numbers. Yet her armies conquered and held the entire civilized world for 200 years. Only Greece remained free, free to gather strength and finally conquer the conquerors. The Persian territory is considerable, a fifth smaller than Mexico. Like Mexico, it is a high plateau surrounded by lofty mountains. But it has a great salt desert at its heart, and only the border-lands are fertile and habitable. One-third as large as India, its population is to-day only 10 millions as against 300 millions in India.

The Indo-Europeans who invaded India were the same stock as the ancient Persians. The two groups lived as one people east of the Caspian, and separated only when the advance into India began. Thereafter they lived in totally different climates; Persia is as dry as India is moist, and by no means as hot, owing chiefly to its elevation. It is probable also that these Indo-Europeans found a smaller population upon the soil, and were not as rapidly swamped as were their cousins in India. At any rate, they certainly retained their hard-riding, adventurous, northern spirit longer.

The Medes held the hills to the north, and they have already been observed in action before Nineveh, aiding the Chaldeans to destroy the great Assyrian Empire. The Medes were the same breed as the Persians to the south, and for a long while were the more powerful. Through a thousand years these Indo-European nomads had been

settled in the western hills looking down upon the Tigris valley, while the great Semitic civilizations came and went. They had become largely a hill people, with flocks to herd and fields to till, and they were still without writing or art. Occasional echoes of them are heard from 1400 B. C. onward as far away as Syria, as if bands had gone west as mercenaries or plain adventurers. It was just before 600 B. C. that the Medes began to play their part in the Tigris valley.

It is hard to say why the Persians launched upon their great career of conquest. The historians who believe that it is great men who determine the course of history would say that it was because a certain King Cyrus came to the Persian throne in 550 B. C. There were probably other reasons. A new and inspiring religion had been founded by a prophet named Zoroaster. He may have lived as early as 1000 B. C. or as late as 500 B. C. It is interesting to compare this religion with its contemporary, Brahminism, in India. Both were the product of Indo-European invasions from the north. Both harked back to the same Indo-European gods of the hills and valleys, sky, sun and star, earth and fire. The Vedas held much of the original spirit. The change came steadily in India, and Brahminism gradually took on the atmosphere of the south, calm, meditative, speculative. Zoroaster conceived of the universe as a great battle between Good and Evil, between Light and Darkness. Man stood in the centre of the fight and must aid one side or the other. He continued the old primitive worship of fire as the symbol of God, and near the ruins of Persepolis, the ancient capital of Persia, are still standing two great fire-altars where the priests of Zoroastrianism and the kings of Persia bowed down before the sacred blaze. Such a religion tended not to take man out of the world into a land of meditation, but to keep him in the forefront of doing. It was a northern faith, a true expres-

sion of northern character. At the same time it was a great advance from the earlier nature-worship of the northern nomads. It set a high moral standard; it marked a long step toward the worship of one god. It was a perfect expression of national character, and it undoubtedly did much to unite the Persian people and inspire them with a will to conquer in the name of their great faith.

There were two great kings of Persia, Cyrus the Great and Darius. Both brought a new spirit into this region of western Asia, where civilization was now a story 3,000 years old. They could be cruel in war if angered, but there was a new generosity in their treatment of the conquered. Herodotus, the Greek historian, described the Persian ideal as "to ride, and to shoot, and to tell the truth." Plainly there still survived in these descendants of the steppes some of the largeness of view of the open spaces in which their race was bred.

Cyrus came to power in 550 B. C., and he had first to conquer his fellow Indo-Europeans, the Medes. This done, he faced an attack by the Lydians of Asia Minor under King Crœsus. These were probably of Hittite descent, and were the richest people of the age. They may have been the inventors of coined money, since the oldest known coins are Lydian and of this period. Even among the old civilizations of the eastern Mediterranean the Lydians were rated soft and overluxurious, and they were no match for the hardy mountaineers of Cyrus. It was with the bow and their horsemen that the Persians gained their battles. Their tactics were to overwhelm their enemy with a hail of arrows and then ride them down. Only by coming quickly to a hand-to-hand conflict could they be beaten. As will be seen, it was in this fashion that the heavy Greek infantry finally prevailed; theirs was a victory of spear against bow. But now the bow conquered, all the riches of Crœsus availed him nothing, and the Persian Empire at one stroke ran to

the sea. Turning back to a nearer enemy, Cyrus attacked Babylon and the Chaldeans. Here he faced another ruler whose name is a common symbol for oriental luxury, Belshazzar of Babylon, whose feast and downfall are described in the Old Testament (Daniel 5). The fall of Babylon brought the whole Chaldean Empire under Persian rule. From Persia to the Mediterranean, Cyrus the Great was lord. All this had been accomplished in ten years.

In no way did Cyrus better display his generous point of view than in his treatment of the captive Jews of Babylon. They had hymned him as their hoped-for deliverer and he did not disappoint them. When Babylon fell, they were set free to return to Jerusalem, and many of them did so. It was these returning Hebrews who raised Jerusalem again from its ruins, and under the benign Persian rule brought all Palestine back to prosperity.

Cambyses, the son of Cyrus, succeeded his father on the throne and while he rounded out the empire by invading and conquering Egypt, he showed the typical weaknesses of the inheritor of a great power. He began to learn the vices of the later Semitic despots. Meeting with disaster in a campaign in Upper Egypt, he seems to have gone mad with rage, to have violated tombs and desecrated temples. Had he had a son of his own character to succeed him, it is safe to guess that the decline of Persia would have set in within these three generations of rule. But he was childless, and the throne went to a distant cousin, the great Darius, as able a general as Cyrus and a greater organizer.

These rulers of the civilized world had been but fifty years before kings of barbarian hill towns, without writing, without art. If one may single out one quality above all else for praise, it was their ability to learn and make their own. Darius brought artists from all the world to build his Persian cities. He coined money in the new Lydian fashion, gold and silver. A cuneiform alphabet was

adapted to the Persian tongue, and government was carried on in the two languages, Persian and Aramaic. Darius used what he could of the Assyrian framework of government, but he filled it with his own spirit. He was the first benevolent despot, it may be said. He left his subject peoples all the liberty possible, including their several religions. There was none of the brutal annual raiding of the Assyrians for gold and loot. Darius was crowned king of Egypt and Babylon; the rest of the empire he divided into twenty provinces in charge of royal governors called by the Persian name of satraps. He demanded only a fixed and reasonable levy. As a result he built up an empire that did not fly apart the moment he died, but that survived his death a hundred and fifty years, outlasting a long line of weak emperors.

Darius had the imagination to see that his empire must have fleets to be truly powerful. He built his own ships and made the Phœnicians his friends. Thus from his palace at Persepolis, in the far hills of Persia, the Great King commanded his galleys upon the Persian Gulf, in the Red Sea, to the farthest waters of the Mediterranean. No wonder he carved on the wall of his great staircase at Persepolis the proud words: "Darius the king saith: This land of Persia, which Ahuramazda (the Zoroastrian God) has intrusted to me, the land that is beautiful, that hath good people and fine horses by the will of Ahuramazda and my will, it fears no enemy."

Thus the descendants of these eastern Indo-Europeans gave this whole region of the ancient civilizations 200 years of peace—from 550 to 350—and a generous peace which fostered the spread of ideas, the interchange of culture. It is difficult to estimate the service rendered by such a nation. The simplest method is to dismiss the Persian Empire as a thing which had its hour of glory and then disappeared. But the forces which make for progress are too complicated

to admit of easy answers. If Cyrus and Darius did nothing else, they left behind them a great idea, the idea of unity, the notion that all the nations of the world might be assembled under one rule. One conquerer after another sought to follow in their footsteps, and a mingling of peoples and ideas resulted, if no more.

Xerxes, son of Darius, succeeded to the throne. He was a typical oriental despot, weak, vain, vicious. Under him the empire suffered its first great defeats. Yet the bulk of the work of Darius survived until a yet greater conqueror of northern blood, Alexander the Macedonian, came out of the west and brought all western Asia to heel in 333 B. C.

But that is the sequel of the story of Greece which belongs in a separate chapter. Already crucial points in that story have been passed, the first conflicts between Persian and Greek that heralded the ultimate victory of the west. Marathon was fought under Darius, Salamis under Xerxes. Both belong on that small list of battles that decided not merely the fate of nations but the fate of civilization.

It is time to leave the Persian Empire, becoming orientalized and declining toward an ignominious end, and follow westward the far-flung line of northerners. Let it not be forgotten, however, that these horsemen of the Persian plateau were own kin of those Greeks who are soon to face them in the west. It was written perhaps in their climate, perhaps in the mingling of their blood with peoples of the south, that they could not endure. There is evidence that the climate of Persia has changed for the worse, and perhaps drought was their true conqueror. In any event, they wrote a clean, brave page of history, and few peoples can do more.

4. THE NORTHERNERS WHO HELPED MAKE GREECE AND ROME

The northern invaders of Greece and Rome come next in the Indo-European line. The rise of these civilizations, beginning in Greece about 500 B. C., in Rome about 300 B. C., marks the commencement of a new stage of human progress, and their development will require separate chapters. They are mentioned here to make clear their relationship to the broad movement of peoples.

Following the northern grass-lands around the Caspian Sea, one comes to what is now southeastern Russia. The same story of raiding nomads is heard here, though they never came far enough to conquer a civilization and, in turn, be conquered by it. Scythians they were called by the early historians. They are probably a link in the Indo-European chain, though definite proof is lacking.

Beyond lie the Carpathians and the end of the northern grass-lands, save only for small detached plains. Northerners driving west and south would be likely to reach, first of all, Greece, and, second, the Italian peninsula. So they actually did, and the two great civilizations of Greece and Rome were the result. Enough has already been seen of the horse-taming barbarians to understand that they could never have created such civilizations by themselves. Both were, in fact, built upon deep foundations. Both Greeks and Romans were the result of a fusion of ancient Mediterranean peoples, already possessed of a high civilization, with a sprinkling of these northern barbarians, who brought with them a great language and unbounded youth and vitality.

There were no other ancient civilizations on the Mediterranean that these western Indo-Europeans could fuse with and they made no other civilizations. They remained bar-

barians for a thousand years and more while Greece and Rome rose and set, and they were finally civilized only when the torch of these ancient civilizations fired their souls. That is the story which will be traced in the next section. It will carry the record of Europe far beyond the rise of Greece and Rome, which will be described thereafter.

5. THE LONG NIGHT IN WESTERN EUROPE

Dawn has broken over the eastern Mediterranean, and wild riders of the north have poured down into that first sunlight of civilization. The western kinsmen of these wanderers are now to be traced as they march into western-most Europe. It is night they enter, neither sunlight nor the faintest flush of dawn. The year 2000 B. C. found western Europe at the end of the Neolithic Age, with the lessons of herding and farming learned as well as the discipline of village life. The climax of this barbarian age of polished stone tools was the lake-village of Switzerland and the people who built the rude if magnificent temple of Stonehenge on an English plain.

It is the period that the archæologists call the Bronze Age and the Iron Age. As has been noted, this is an accurate and convenient dating of progress, but it is apt to put undue stress on the discovery of metals and send to the background the far more important event, the invention of writing. The Age of Bronze was far more the Age of Writing in all the oldest civilizations—in Egypt, in Babylon, in Crete. If one has any doubt as to which is the more important, metal or writing, this story of western Europe should settle one's mind.

Bronze coming probably from the East spread throughout Europe and into England by 2000 B. C. Iron followed a thousand years later. But western and northern Europe completed their civilization only in the centuries following Charlemagne, after 800 A. D. in the Middle Ages. That

is to say, western Europeans remained for nearly 3,000 years in the metal ages without moving out of barbarism. There were reasons for this in the geography of Europe and in the character of the peoples. Civilization first developed in fertile, sheltered corners of the world, not in a forest-clad continent open to attack from every quarter. Also the northerly races of Europe developed slowly, just as some trees are the last to bud in the spring. There is no question of praise in this matter of early or late development. The precocious south and the slower north each had merit. What is important to note is that these delaying causes recorded their effect in the failure to develop writing. Western Europe never created an alphabet of its own or learned to write until taught by Rome. Without writing to hand down accumulated wisdom, no amount of skill in forging bronze or iron could win civilization.

Stonehenge was built about 2000 B. C. That was a thousand years later than the first of the Great Pyramids of Gizeh. But Stonehenge was a magnificent achievement of the Stone Age, and had it been followed by a great civilization with the introduction of bronze, there would be a noteworthy parallel, a thousand years later, to the history of Egypt. It was not so followed, as has been noted. For 3,000 years after Stonehenge, western Europe remained barbaric. When civilization finally arrived it came from the Mediterranean.

The arrival of the speakers of Indo-European tongue in western Europe is of the greatest interest to Europeans and Americans, for their distribution made history. Yet since they possessed no writing, history is thrown back again upon archæology and anthropology, upon pottery and metalwork, upon graves and skulls. One plunges back into that anonymous, impersonal prehistory from which, thanks to writing, the countries of the eastern Mediterranean had long before emerged. The only verbal echoes of this past

which have come down are those traditions which were preserved by the poets in songs of heroic adventures recited to generation after generation, handed down by word of mouth, and not put in writing till the Christian era. These are immensely valuable as a picture of the time, even if not for exact historic facts. It is also to be remembered that archæology reveals far more of the life of a people than early history. The lack is chiefly in dates and names.

What, then, is the story of these dim horsemen riding westward over Europe in the centuries after 2000 B. C.? So long as the language test was followed and the theory of a great Aryan race upheld, it was simple enough. Vast numbers of this great Asiatic people came pouring in, enough to people all Europe. All the civilizations of Europe were Aryan. We were all Aryans. But now that the language test is seen to be inconclusive, what do archæology and anthropology say? No final and complete answer, it must at once be made clear. It is known that these Indo-Europeans from the grass-lands spread over Europe some time after 2000 B. C., and that they spread their language far and wide over the Continent. But there may not have been great numbers of them. They may have been hardly more than a sprinkling of powerful barbarian conquerors. As was observed in India, such a small minority can impose its language, if a great language, upon a vast number of people. Also, these invaders were barbarians and remained barbarians save as Mediterranean civilization taught them better things. So much is fairly clear. What is still doubtful is the identity of these Indo-Europeans. How many types were there? Where did they settle and what did they look like? Which among modern types of Europeans display their characteristics?

The only answers to these questions come from the anthropologists through their theories of race. Unfortunately, the science of anthropology is too young to yield

sure results. It is still in a highly speculative stage. Skull measurements are the chief facts upon which efforts have been made to define enduring types of Caucasian man. A few scientists reject the evidence of skulls altogether, contending that their measurements have no permanency through the generations. Most anthropologists, however, feel that the proportion of the skull—whether broad or narrow—is an enduring and basic factor. Many thousands of ancient and modern skulls have been measured and, coupled with other facts, have furnished the basis for interesting hypotheses. Provided the tentative nature of these anthropological theories is understood, there is no harm in considering them. What follows must be read in the light of these reservations. As a rough generalization, one can feel fairly sure that there is such a thing as race—that there are types or strains of man which persist over long periods—but that anthropology is still far from a satisfactory definition of their features.

It will make the issue clearer to describe the three general types of man that most anthropologists think they see in Europe to-day. They are: Mediterranean man, Nordic man, and Alpine man, to use the prevailing terminology. All three could be branches of the Caucasian division of mankind. They are sometimes described as three zones of mankind, running east and west across Europe; the first in the south along the Mediterranean, the second, Nordic man, in the north, and Alpine man wedged in between. But, of course, the zones were greatly confused; in the west, Mediterranean man spread northward along the Atlantic coast, because of the mild climate; and in the east, Alpine man spread northward over most of Russia. Also there are untold combinations and mixtures of the three types. Here is a description of the three types as they are conceived to appear when found in more or less purity:

Mediterranean Man. A pure form of this type is found

to-day in Portugal. He was dark, graceful, of oval face and narrow skull, of short or medium stature. Roughly speaking, he is supposed to have surrounded the Mediterranean in Neolithic times, and made his way across France and throughout the British Isles, wherever the warm Gulf Stream gave him the mild climate he needed. If so, he probably built the megalithic monuments of Europe. It was his blood which largely peopled Egypt and Crete and gave the world the first two Mediterranean civilizations. The type may have been fixed in Africa and spread northward; but upon this point there is no agreement. This theory would regard him as the chief type of Neolithic man in western Europe. Iberian is the name for the westernmost branch of this race that pushed up through Spain and Portugal. Ligurian is the name for the branch that crossed into Italy. The eastern strains were greatly confused and are still but poorly understood. Pelasgian is the name often applied to the ancient stock of Greece.

Nordic Man. By this designation is meant the peoples who somewhat later appeared in Scandinavia and northern Germany. They were tall, narrow-skulled, with blue eyes, flaxen hair, and high aquiline noses—the Viking type. The type is common to-day in Scandinavia, in northern Germany, in parts of England.

Alpine Man. Here is the great battle-ground of the anthropologists. Some deny that there was such a race, considering that Nordic man and Mediterranean man merely developed a broad skull in the highlands of Europe, just as hill cattle are said to develop broad heads. The prevailing view, however, treats Alpine man as a separate race that pushed westward along the mountains of Europe. He had a broad skull and a stocky body, neither tall nor short. There is much confusion as to his coloring; many were gray-eyed, with chestnut-colored hair—between the dark men of the Mediterranean and the flaxen men of the north.

Alpine is a recent name and not altogether satisfactory, for Alpine man becomes more and more numerous as one goes east, and spreads out over most of Russia, which is not Alpine in the least.

One word of warning must be repeated. By every theory these races were not of pure stock and all were soon to be greatly mixed again. All the prehistoric evidence points to early migrations and minglings. Broad-headed skulls of the Alpine type appear in Europe in the Old Stone Age, though Neanderthal man and Cro-Magnon alike had narrow skulls. In Neolithic times there were many broad-heads among the men of the lake-villages. (Perhaps these early broad-heads were advance waves of the same stock which later sent Alpine man across Europe.) The divisions described are conceived to be simply prevailing types produced by long periods of relative isolation, undisturbed by any great intermixture. It is by the mixture of these three types in varying combinations and proportions that the diversity of modern Europe has been produced. No new stock has entered Europe in large numbers since these distant migrations two and three thousand years ago.

The puzzle is, which of these three races introduced Indo-European languages. The older Mediterranean race can be disregarded. These were plainly the stock on the soil when the horse-tamers arrived. Their blood is largely represented in modern Europe, especially south and west. It was their genius which laid the foundations of Western civilizations. But they did not speak an Indo-European tongue. (Conceivably Basque is the solitary remnant of their speech in far western Europe, but evidence is lacking to confirm or deny this speculation.)

There remain Alpine man and Nordic man, and here is the crux of the problem. Which of these races brought the Indo-European language to Europe? Or did both? National feeling has played its part in the great debate on

this problem. German scientists have argued that the tall blonds of north Germany were the original Indo-Europeans, and that they began and developed around the Baltic Sea. A cult of the dolichocephalic blond has arisen. Its members have contended that this type of man was destined to be the conqueror of the world. It is hard even for a scientist to be impartial when his work touches his national prejudices. Each reader can feel his own prejudices awaken as he reads their arguments.

Since the effort here is to hold strictly to that which is known, it must be set down at once that science cannot decide whether it was Nordic man or Alpine man or both that spread the Indo-European languages throughout Europe. It would be utterly misleading to treat any of the current hypotheses as established truth. But since it is difficult to tell the story of western Europe without using one Indo-European theory or another upon which to hang the record, one will be sketched which at the present time—if the theory of race is accepted—accords well with the known facts. The facts will be kept clear from the theory, and the warning will be repeated that the hypothesis must be viewed simply as one key with which the anthropologists are trying to unlock a particularly difficult lock. It may not work and the final solution may be quite different. The details are vivid, at any rate.

The period under consideration began around 2000 B. C. and ran well into the Christian era. The historical period of written records began only in the first century B. C., and then only with the writings of the Roman conquerors; Julius Cæsar, for example. The first metals found in the remains of western Europe were gold and copper. They formed a transition stage from stone to bronze. Copper could not drive out stone, however, for a copper tool will not hold its edge. (This copper-using period was the exact stage that had been reached by many of the North Ameri-

can Indians 2,500 years later, when America was discovered.) The knowledge of how to mix copper with tin and thus make bronze, a much harder metal, probably came from the older civilizations of the eastern Mediterranean; but there are some anthropologists who argue for an independent discovery in Europe. There is plenty of copper in Europe, and there are tin-mines in Wales and Brittany.

Bronze was in full use in Babylon and Egypt by 3000 B. C. and may well have been discovered by 4000 B. C. Bronze first reached western Europe in the Swiss lake-villages around 2000 B. C. It entered England and Scandinavia a little later. As has been said, the Bronze Age in western Europe lasted roughly from 2000 to 1000 B. C. The first bronze tools were modelled closely after stone hatchets, and it was a long while before shapes taking advantage of the qualities of metal were thought of. That is the universal history of inventions. When the steam-engine was invented, the first passenger-cars were stage-coaches arranged to run on rails. The same style of car still serves a large part of Europe. Similarly with the automobile; the first models were horse-drawn carriages, and it was many years before the automobile was designed independently of its ancestry. Man has always poured his new wine into old bottles.

Ultimately the bronze industry reached a rare state of skill and beauty of design. A wholly new weapon came into use, the sword. It was straight and narrow in Gaul (the region of modern France), a prolonged dagger, meant for thrusting. The workmanship of the best bronze weapons has never been surpassed. When one realizes how accurately the moulds must be made, what skill is required to pour in the metal and to secure flawless surfaces, one can appreciate what high mechanical skill these Bronze Age artisans achieved.

Somewhere in the course of this Bronze Age comes the

first evidence of the arrival of a new people in Europe. In England especially is the change unmistakable. The method of burial changes and the shape of the skulls changes at the same time. By an odd coincidence the two changes parallel one another and offer an easy way of remembering what happened. Up to this time the burial-places are long and narrow, and the skulls found in them are usually long and narrow, typical of the Mediterranean race, as has been noted. Round burial-places now become the fashion, and broad or round skulls begin to appear in them. There is not as clear a change on the Continent, but the skulls become broader throughout this period. There is another important change in the manner of burial. Heretofore the body was buried on its side in what is called the "contracted" position; that is to say, on its side, with knees doubled up. (Why this was done, the archæologists are not agreed; probably it had a religious significance. It is found throughout the countries inhabited by Mediterranean man, from Egypt to England.) At about the same time that the burial-places and the skulls become round, this ancient form of burial disappears, and the body is often burned before burial. Incineration continued to be the prevailing practice of western Europe down to the spread of Christianity around 300 A. D. Perhaps the change in burial was a natural evolution, but coinciding thus with a marked change in the shape of skulls, it is probable that a new race had arrived upon the scene.

In the tentative hypothesis here followed these new broad-heads were the bearers of Indo-European speech. They were the same people who appeared at the eastern end of the Mediterranean in Greece somewhat before their waves broke upon western Europe. Strange peoples called Acheans came driving down from the north upon the ancient Ægean civilization from 1500 B. C. onward. A long succession of other tribes followed. All the islands of the

eastern Mediterranean were in a ferment. This seems clearly to have been the first breaking of this westward-travelling wave across the lands of Europe.

Under the same theory iron also came from eastern Europe, brought by a later drift of broad-heads westward. The Iron Age in western Europe can be thought of as beginning about 1000 B. C. and as extending down to our present time. The diffusion of iron was the chief mark of the Celts,* who constituted the last and greatest waves of broad-heads, and reached their height of power and numbers in western Europe around 300 B. C. But long before, there was a primitive iron culture in southern Austria, which may have been a centre of distribution for all Europe. This primitive use of iron—imitating closely the shapes of bronze weapons—antedated 1000 B. C. The later development of iron to a stage in which it drove out bronze reached its perfection after 500 B. C.

The Celts were mighty barbarians at the height of their power. From 500 B. C. they began to press hard the older Mediterranean man. First developing in Europe along the valley of the Danube and in the Alps, they struck northward east of the Rhine to the North Sea and the Baltic. Thence they crossed into Belgium and occupied northern and central France. Thereafter they pushed outward in every direction over most of northern Germany, southward into Spain and Italy, northward into Britain, even eastward into Greece (where they were defeated), into southern Russia, and across the Hellespont into Asia Minor, where they established the Galatia (from the name of Gauls by

* More ink has been spilled around this race name than any other. It was used by the ancients to describe peoples of Nordic and Alpine types, indiscriminately. Modern philologists use it to designate the Gaelic languages spoken in Brittany, Ireland, Wales, and Scotland. In the last three regions the broad-heads never predominated. It is used here, for the lack of a better term, to designate the later waves of Alpine types, doubtless mixed with much Nordic blood by this time, who became the masters of western and central Europe after 500 B. C.

which they were often called) of historic times, to whom Saint Paul probably wrote his Epistle to the Galatians. They even entered and burned Rome in 390 B. C., withdrawing on the payment of a bushel of gold. From Asia Minor to Ireland they fought their way.

Having no writing, they appear in definite form only for moments as they cross the scene of some older civilization. There are several famous Greek statues of them; notably the one showing a Gallic chieftain slaying his wife and then himself rather than submit to capture. Here is a barbarian but a magnificent barbarian, displaying a noble courage and love of liberty. He is fighting naked save for a cloak about his shoulders. The woman in the statue has short hair, tousled and unkempt. The Gauls were still fighting naked when Cæsar marched his Roman legions against them in the first century B. C. Thereafter they slowly began to learn civilization from their conquerors.

Much later, in historic times, two movements of barbarian peoples within the borders of Europe were to come. Both concerned the Nordic race of tall, blond men dwelling in the forests and snow around the Baltic and the North Sea and southward therefrom. The first was the tremendous eruption of Teutonic tribes that overran Europe from 400 to 600 A. D. The second was the lesser movement of Scandinavian conquerors by sea from 800 to 1000 A. D. All these peoples were of Nordic stock. It is entirely possible that they, too, spoke an Indo-European tongue and had arrived centuries before, from the northern grass-land. But the prevailing hypothesis conceives them as originating around the Baltic, conceivably a branch of Mediterranean strain bleached and grown to a higher stature through long ages in the north. (This theory is supported by the shape of the skulls.) It was the pressure of a totally different race to the east, the Huns, true Asiatic Mongols, members of the yellow race, that set the Teutons in motion from the

Black Sea to the North Sea. How the Angles, Jutes, and Saxons crossed to England, the Franks entered northern France, the Vandals drove clear across France and Spain to Africa and on to Carthage and Rome, and the East and West Goths (from north of the Black Sea) overran all southern Europe, belongs in the story of modern Europe.

The march of the Teutons was triumphant. They swept over the whole Roman Empire, conquering alike the older Mediterranean man and the newer broad-heads, including the Celts. But it would be a great mistake to conceive that the Teuton barbarians exterminated either Celt or Mediterranean man. More and more anthropologists are coming to feel that all three of these races play a large part in the ancestry of the modern European. The Mediterranean race of the New Stone Age lived on through all the broad-head invasion, and shows clearly in Europe to-day. The broad-head has left fewer traces as a physical type in western Europe, but it is clearly predominant in eastern Europe. The Teuton and Scandinavian, bred for life in the colder regions of the north, still predominate in northern Europe; they have largely withdrawn from southern Europe.

Such was the long night of western Europe. Civilization by the gift of the Romans was slowly working northward through Gaul among the western and central barbarians when the most backward tribes of all, Nordic man, developing slowly in the cold of the north, suddenly swept down and put out the few fires of civilization that had been kindled. It can be seen how complete a myth is the theory that Aryan man brought a civilization to Europe out of Asia. Whether one is to think of Alpine man or Nordic man or both as bearers of the Indo-European language, neither brought or developed any higher state of life than a splendid barbarism. Western Europe went as far as bronze and iron could take man; it had to learn writing from the Mediterranean before it could go farther.

It is interesting to try to picture more clearly these barbarian ancestors of modern Europe. It was an age of heroes and songs about heroes. Long unwritten stories of their deeds were recited by bards. There are ancient Irish epics which are thought to describe life in Ireland around the beginning of the Christian era—though they were not reduced to writing till many centuries later. The "Iliad" and "Odyssey" of Homer describe a somewhat similar life at the eastern end of the Mediterranean 1,000 years earlier. At the latter end of the period are "Beowulf," the Teutonic epic, and the Norse sagas, last of all. Such evidence has to be used with great care, for details from later periods were constantly added by every generation that recited the poems. Also the question is of a civilization which reached different levels in different areas, and at widely different times. Only a rough sketch of the most widely diffused features can be attempted.

A hard-fighting, heavy-drinking breed of man these epics picture. Sacrifice of animals and human beings was a constant feature of his religion. He was unspeakably brutal according to modern ideas. The patriarchal form of society still persisted. The great hall was the centre of family life. There the chieftains gathered to feast and drink and hear the epics recited. Broadly speaking, the whole age remained in that period wherein man the nomad, the herder of cattle, was learning his first hard lessons in agriculture. Cattle long continued the chief concern of life, to be defended, raided, fought over without end. The older Mediterranean man had doubtless largely become fixed to the land, and had built large villages when he was erecting the megalithic monuments of western Europe. But now a period of migration and movement, of invasion by wandering, fighting pioneers succeeded, and all Europe was in a ferment. First Alpine man, horse-taming nomads from the eastern grass-lands, disturbed the Neolithic calm; and little

settled progress seems to have been made under the succeeding waves of fighting Celts. Then the Teutonic forest man broke loose in the greatest rovings of all. At the end, only a little over a thousand years ago, the most northerly men of all, the Norsemen, raided far and wide by sea, coming for the first time within touch of civilization.

These last, sea-nomads, are, essentially, no different from their predecessors in roving. There are no cattle in the sagas, the prose epics that tell of the deeds of the Vikings. There is the same joy in battle, the same constant fighting, the same brutality, the same drinking, as in the more southern Europeans. One might be tempted to call them pirates at a first glance, for they certainly roved the seas for booty, killing and laying waste as they sailed. But a study of their epics will reveal how different they were from the pirates and buccaneers of later times. There is the strictest code of honor and courage, for one thing. Here are no abandoned ruffians with their cutlasses at one another's throats, but rather brothers-in-arms, sworn to adventure, and living and dying in strictest accord with their ideal of life. One is reminded of that Gallic chieftain killing his wife and himself rather than submit to capture. No epics were left by the Gauls, but one feels a similar high courage that commands admiration and respect.

The "Iliad" yields much the same atmosphere. Here was a far greater epic, the greatest in the world, for already the magic genius of the Greek mind, the lucky product of a mixture of an ancient Mediterranean civilization with a sprinkling of the new barbarians, was at work. But the spirit was the same, the battles of the heroes, the glory of a splendid barbarism.

These epics bring one back to the great gift which, whatever racial theories are conceived or if all are rejected, was in some fashion assured to Europe in these marauding, roistering centuries, the Indo-European tongues. Wholly

as spoken languages, they arrived. If Alpine man brought them, they were diffused far and wide by a relatively small number of conquerors. In any event, it is probably accurate to say that it was the language itself that conquered. These magnificent epics bear testimony to the beauty of those early tongues, before even they were reduced to writing. There is fire, imagination, poetry in every one of them. No wonder the Indo-European languages swept aside every earlier speech, saving perhaps only the Basque. One must not lose sight of this central fact. Race is the more important, but speech determines much. Upon its vigor, accuracy, simplicity, more than any other equipment, depends the progress of a people. It is well to think of this long age in western and northern Europe, when swords of bronze and iron were clanging as never before or since, as even more the age when there were forged the words of all the Western tongues.

CHAPTER XIII

CIVILIZATION BEFORE GREECE

THE moment before the discovery of writing gave occasion for a review of man's progress; and now before the story of Greece, there is need to pause again. For with Greece began a new age, as different from its predecessors as men of history were different from the Stone Age men. It has been the custom to class Greece and Rome as ancient history; but the phrase is misleading in so far as it tends to class these civilizations with Egypt and Babylon and Crete rather than with what followed. The modernism of Greece is one of its amazing qualities. Many have remarked that Greece seems closer to modern times than the Middle Ages. One's effort should be to understand that from Greece forward to the current year the story of the Western world has been single and continuous.

I. INVENTION

The first great inventions of this period were writing and the use of metals, bronze and iron. The invention of a seagoing ship came close after in point of time and in importance. The horse must surely be placed on a par with the ship. His taming was a tall mile-post along the route of mankind. That writing was the basis of all the other progress has been stressed. This progress was immense on the practical side. The steel swords of Damascus were as fine as have ever been made since. The stone-cutting of the Egyptian pyramids was exquisitely done. The metalwork of the Cretan goldsmiths has never been surpassed. The Phœnician factories turned out quantities of vases and other artistic objects, not always of the best design but of excellent workmanship. It was an age of craftsmanship. Its end found man's skill with his hands complete.

But he made little progress on the theoretical side. The Egyptian could build an immense pyramid by rule of thumb, but he never discovered the geometrical formula for calculating the cubic contents of a pyramid. He had a formula that was a guess based on practical observation; naturally, it was inaccurate. There was no algebra or geometry by the end of this period; only the elements of simple arithmetic. The Egyptians and the Babylonians observed the sun and stars in order to construct the calendar. The Chaldeans became famous astrologers as well. But of real astronomy, there was only the smallest beginning. Any child of ten to-day knows more of the theory of the universe than the whole world knew before Greece.

It may be asked what is the use of theory when the Egyptians could build their temples and pyramids without it. The answer is that they could build them only by a terrific use of man-power. Modern civilization has been made pos-

sible only by substituting mechanical devices, the lever, the pulley, the crane, steam, electricity, the machine in every form, for man-power, and all these devices rest on a basis of theoretical knowledge. The Egyptians developed an elaborate system of primitive irrigation, using buckets and man-power. They had neither the scientific foresight to plan nor the engineering skill to execute the Assuan Dam.

It is the conquest of nature toward which all inventions look, and in these ages, far as man has travelled from the first savage who made fire his servant, far more remained to be achieved. But a small patch of the earth's surface was even discovered. Irrigation had done something to conquer drought. Famines still returned. The sea was a thing of constant peril; helmsmen steered by the stars without compass or sextant. The eclipse of sun or moon was an unexplained portent of mystery and terror. Man is still far from a complete conquest of nature; perils still abide in sea and sky and in man's most powerful enemy, disease. Yet this is a high noon of power compared to these long centuries of fumbling in the half-light of dawn.

2. INDUSTRY

The huntsman, the herdsman, and the farmer were the product of prehistoric times. Then the farmer was only a beginner; he was not securely attached to the soil, and he hunted and tended his flocks as well. Farming was, in fact, one of the hardest lessons that man had to learn; he came to it slowly and reluctantly when driven by necessity. Farming thereafter became the great industry of the earliest civilizations. In Egypt, as in Babylon, man learned to live permanently on a piece of land and feed himself from its crops.

The three occupations later developed in this period were seafaring, trading, and soldiering. The first sailors of Egypt, Crete, and Phœnicia brought a new type into the

world that has never failed to keep its own peculiar character. Sea-nomads, we may call them, for they share something of the love of adventure, the restlessness and courage of the rough-riders of the plains. The caravans, composed of those ships of the desert, the camels, were in fact manned by nomads, and a voyage across a desert bore many resemblances to a voyage overseas.

It is the seamen, above all others, who have enlarged the outlook of the world. It has been suggested that history falls into four periods.* The first was a land-and-river period, the early days of Babylonia and Egypt, when the only travel was over the roads and rivers. The second came with Cretans and Phœnicians, as man turned his prow toward the open sea and brought the entire Mediterranean shore-land up over the horizon. But this was a midland sea, as its name exactly states; its shores made a ring of lands within which was all that man knew or cared about. Within this circuit of lands, Greece and Rome lived and died. The third period began with the rise of Atlantic seamen, Norsemen, English and Dutch, Portuguese, Spanish, Genoese, and reached its great moment in the discovery of America. The world has ever since been centred about the Atlantic Ocean, which has slowly been converted into another midland sea. (New York and London are much nearer to-day than were ever Thebes and Troy.) The interesting suggestion follows that the world may be to-day passing into a fourth stage, in which the Pacific Ocean will be the centre of the world. Each of these great widenings of man's horizon was the work of sailors, the one race of men whose adventure has never halted.

The tradesman grew to his full importance under the wise rule of Hammurabi of Babylon. With traffic overseas, he became a colonizer, a traveller upon a wide horizon. As a natural result of so much trade, money was invented.

* J. L. Myres, in "The Dawn of History," pp. 29–32.

Primitive man exchanged goods exactly as boys swap marbles or anything else. But this system of barter is clumsy and inconvenient. Man early hit upon the idea of using some one common thing as a measure of value. Cattle were thus widely used all over Europe. In Homer's "Iliad" the value of two sets of armor is figured in terms of oxen. The Latin word for money is *pecunia,* and *pecus* meant cattle. (Our word impecunious comes from the same root, and means, literally, without cattle.) Tobacco was used by the British colonists in America. The Indian wampum was simply a valuable bead made of shells. Once the idea came of using such a thing as a regular unit of value, money was invented. After that the question was simply to hit upon the most convenient kind of money. Almost every metal has been used at one time or another, from iron to gold. First it was used in rings or ingots, which had to be weighed each time a purchase was made. Then each piece was stamped with the weight. Finally, a king of Lydia stamped a mark of the government on a piece of certain weight, guaranteeing its fineness and weight, and the first coin was issued.

The soldier was new only as he became an expert member of a carefully trained class. Every man had been a fighting man in the old days. Now began the era of specialization, which has continued down to the present time with increasing force.

The king and priest might be placed on this list, though far from new. The chieftain of the tribe and the medicine-man are obviously their remote ancestors. Their development comes more naturally under the heads of government and religion.

3. KINGS, PRIESTS, AND PEOPLE

There is no clear story of how man progressed from his totem clan and tribe to village and city government. It can

be guessed that by slow evolution the chief became the king, and the medicine-man became the priest. It is at least clear that throughout this early period religion and government were closely intertwined. It is also clear that at some point the elaborate kinship system of the clan broke down, for where the beginnings of government in Egypt and Babylon can be observed, there is no totem organization and the family is composed of blood-relatives, father, wife or wives, and their children. Perhaps the sheer size of the local unit, the growth of large villages or cities, stretched the totem bond, with its complicated restrictions on marriage, to the breaking-point.

The only hint of the earlier form is the peculiar fact that in Egypt descent was traced through the mother. Also woman held a high and respected position in society, and goddesses were prominent in the worship. Perhaps all this was a faint memory of the ancient mother-right of savage days. Not much is known of Cretan religion, but certainly here, too, goddesses played a prominent part. It is tempting to guess that Mediterranean man everywhere had passed through a prolonged stage of mother-right and was loath to forget its memories. If so, the goddess cult may have been wide-spread among the Neolithic ancestors of Europe. By contrast both Semites and Indo-Europeans, so far as is known, traced descent through the father, and their most worshipped deities were gods, not goddesses. The Semitic gods were not even married. (The union of Indo-European gods with Ægean goddesses can be observed in the story of Greece.) The first glimpses of these two breeds of nomad barbarians reveal them organized on the patriarchal plan, which is a large family of blood-relatives, involving no totem principle of kinship.

Custom was a rigid and cruel tyrant for savage man. But so far as actual government went, there was no such despotism as is found in the rule of the Egyptian pharaohs or

the Babylonian kings. The tribal chief was much more one of the people; he was bound by custom quite as much as were the members of the tribe. The rise of the absolute despot, ruling his people as subjects, belongs with the rise of the larger group, the city-state. It continued the only form of rule known throughout this period. That the people had any rights to a voice in the government, or indeed any rights whatever that a king need respect, seems to have occurred to no one. In Egypt this king was all-powerful from the start, and was worshipped as a god. The priests developed later as a separate class. In Babylon priests were the first kings, and did not lose power until foreign warfare showed the inadequacy of a priestly government. Thereafter there was always in both countries great rivalry between king and priests, each seeking to gain the upper hand. These are the two great powers in ancient civilizations. The palace of the one and the temple of the other are the outstanding monuments wherever one can uncover their ruins.

The temple was much more than a shrine. It was the intellectual centre of the time. Just as the Christian Church later preserved learning in the Dark Ages in Europe, so the beginnings of learning, of astronomy, of history, of medicine, all were the work of these early priests. In emerging from barbarism into civilization, only the keepers of the temple seem to have had time or interest or mental ability to think about such matters. The one exception is China. There a learned class of educated men was very early developed by a system of examinations like modern civil service examinations, but more scholarly than practical. This was the mandarin class, and it ranked next to the emperor. Unfortunately, the education was intensely conservative and classical, and the system only increased the general conservatism of China.

Below king and priests there speedily formed layer after layer, class below class. In India this solidified into the

caste system, and has endured to this day. It was nowhere else so rigid, but in one form or another it was universal.

Below priests and kings came the nobles, who were related to the kings or were generals or officials or local rulers. In Egypt, in China, and in India there grew up for a time around the greater nobles a peculiar government known as the feudal system. It cropped out again in the Middle Ages in Europe, and still later in Japan. It will be studied in some detail in the Middle Ages. Here it need only be said that it is a half-way stage between patriarchal rule and a unified kingdom; it may come as an advance or as a relapse. Under it the great nobles own the land and parcel it out to tenants. The nobles owe allegiance to the king, and every tenant owes allegiance to his noble, who is a little king within his own estates. It usually ends when the kings gain enough power to conquer the nobles and destroy their rights. The feudal system is by no means a universal stage. Neither Greece nor Rome passed through it, for example.

The tillers of the soil and the herdsmen formed the great mass of the population at the outset. Gradually a merchant class arose, and along with it an increasingly large class of artisans. Thanks to the power that wealth brought, the mercantile class early established itself alike above artisans and countrymen. But in Egypt, for example, the classes were by no means fixed, and there seems to have been much intermarrying. This factor must be borne in mind in judging a class system and the extent to which it cramps freedom.

To this period is due also the rise of slavery as an institution. It was an inevitable result of the great wars of conquest of the early empires. So far from being a new cruelty at its beginning, it was a more civilized treatment of captives; for the savage killed his enemy prisoners as a matter of course, keeping only the women if he fancied them. But it was self-interest, not soft-heartedness, that led the early

kings to enslave their captives. They found in them laborers more docile and more economical than any subjects, however terrorized. Once the slave class was established, it grew from many sources. The poorest and weakest tillers of the soil (serfs, to use the word of the Middle Ages) might fall into debt and become enslaved to their creditor. A poor family might sell a child into slavery.

Slavery varied greatly in the different countries. For instance, in Egypt there were easy opportunities for a slave to earn his own freedom by hard work. In other countries escape was more difficult. What it is important to remember is that slavery was an accepted and universal practice of the period, and that while the slave was often badly treated, so was also the serf, tilling the king's soil. The margin between starvation and living was always a slender one for large numbers of people. As in China to-day, life was a treadmill, ending in early death for untold thousands.

Looking back, it is a temptation to blame the cruel despots building their grandiose tombs and temples for this suffering. But the fundamental reason lay deeper. Egypt did not produce enough food to support the population in comfort, or enough wealth of other kinds to buy comfort elsewhere. If no labor had been wasted on pyramids, there would still have been frequent shortages and constant want. In all these early empires, population outgrew the resources of the country. In modern times discovery and development of new territory have more than kept pace with the problem of feeding the increasing population of the Western world; and the invention of machinery has so vastly increased what each man can produce, that the Western world is farther ahead of starvation, and its poorest classes live in greater comfort, than ever before in the history of the world.

4. FOUR GREAT RELIGIONS

When the curtain lifts upon historic times, man has passed far beyond the savage stages of vague belief which have been set forth. The inchoate faith in mana has gone, and in its place is a belief in definite gods and goddesses. Unmistakably these are personal deities. The feat of personifying springtime or the moon or a mountain or fire presents no difficulty to these advanced barbarians. This is called nature-worship, and it seems to be the well-nigh universal religion of man in the dawn of civilization. This is as true of Egyptian and all Mediterranean man as it is of Semite and Indo-European. The only striking difference is the one already mentioned, that Mediterranean man seems to have laid great store by his goddesses.

In all the rites of nature-worship sacrifice plays a large part. The origins of sacrifice are by no means clear. One theory views it as starting from such a rite as that of the Arunta Indians of Australia, who killed their totem animal, the kangaroo, and ate him. There the object of the sacrifice was to become "all one flesh" with the totem and thereby obtain its virtue and strength. But the story does not seem to be as simple as this. There were many kinds of sacrifice and it is possible that there were several starting-points. Take the scapegoat sacrifice, for instance. The children of Israel once a year performed a solemn rite of purification. The high priest laid his hands on the head of a goat, thus passing into him the sins of the people, and the animal was then led away into the wilderness. There are many similar forms of this sacrifice. Then there was the practice of killing a man's wife and servants and burying them with him. In India the wife flung herself upon her husband's funeral pyre. This practice (called suttee) is still occasionally carried out despite all that the British Government can do to stop it. This is not so much a true sac-

rifice as a mere desire to equip the dead fully in after-life, to give him a wife just as his friends would give him a sword and food. Lastly, there were the sacrifices to appease an angry god, which reached their most terrible form in the sacrifice of children in Carthage and in Canaan.

There is no need to remember these kinds of sacrifice, but one should remember what a large part sacrifice played in early religion. It was the central act of worship on most occasions, and the progress in religious faith was not in the abandonment of sacrifice but in the ending of its gross and evil forms. Human sacrifice was denounced by the Hebrew prophets, for example. Even the killing of an animal was disapproved by the Greek philosophers. The tendency was more and more away from the actual shedding of blood and toward acts that symbolized sacrifice rather than enacted it. More and more stress was laid upon conduct as an act of sacrifice, and morality assumed a larger and larger place in religion.

While the rites were thus slowly purified, certain of the faiths themselves reached new levels. Four great religions came into the world in this era before Greece. Two were born in India: the first, Brahminism, of Indo-European inspiration; the second, Buddhism, of a great southern prophet. Zoroastrianism was an even purer Indo-European religion than Brahminism. Judaism was the great religion of the Hebrews. Brahminism and Judaism were both traditional religions, the work of many tongues, collected and written down. Their dates ran parallel, from 1500 to 500 B. C. Zoroaster may have lived anywhere from 1000 to 600 B. C. Buddha lived around 500 B. C. Thus all four religions were completed within a thousand years. To complete the record, but two religions have been born since: Christianity at the beginning of the Christian era, and Mohammedanism around 600 A. D. It can be realized what a wonderful era this millennium from 1500 to 500

B. C. was in the East. Again we confront the difficulty of rating peoples or periods. So far as effect upon great masses of people goes, the creation of these four religions was undoubtedly a more momentous event than all the other matters we have been recording. These religions are unquestionably the great gift of the East to the world. Their Eastern origin is clear; and it is an odd fact that the only religion which has practically perished is Zoroastrianism, which probably had the most direct kinship with Western ideas and temperament. The East has long been reverenced as the great mother of religions, and time has not altered that judgment.

There is not space to attempt to analyze these four religions and see how they mark progress. It can only be said that each of the four sought to discover a unity in the old nature-worship upon which they were based and thus to advance through the ancient polytheism to a belief in one god. Of the four, Buddhism was weakest in this respect —by taking a purely negative attitude—and Judaism the strongest. In the mouths of its greatest prophets, Judaism undoubtedly reached a height of monotheism above any religion that had gone before.

One contrast remains to be drawn. The Egyptians paid more respect to the dead than any other people of the West; much as the Chinese worshipped their ancestors in the East. There is no question that, carried to this extreme, the reverence for the dead became a numbing and cramping force. All Mediterranean man seems to have looked in this direction. The Semitic peoples also paid great respect to their ancestors. With the Indo-Europeans a new point of view opens. Most of these peoples cremated the bodies of the dead; an act which in itself tends to free the future generations from too great thought of the dead. They were, it may be said, too much interested in living to fall in with the ancestor cult. In no way did the adventurous, hard-riding

Indo-European break more completely with the old ways than in this shifting of interest from the past to the present and the future.

5. ART AND LITERATURE

The contrast among the artistic achievements of the different races can be stressed again. Mediterranean man was great in things of the eye. The monuments and sculpture of Egypt, like the frescos and goldwork of Crete, were the greatest works of the age. The Semitic peoples were artistic chiefly in the spoken word. Their fame rests securely on the Old Testament. Their one great success in statuary was the bas-relief of the Assyrian. The Indo-Europeans had nothing save their language, but with that language they chanted the noblest epics the world has seen. In the East the epics took on a religious turn—in India and in Persia. In the West they were tales of heroes—of Ulysses and Beowulf. No wonder their language conquered the new world of the West and was destined to be heard round the world.

6. THE PEOPLES WITHOUT HISTORY

While these first great historic events were stirring in this small region, what was happening elsewhere? The settlement of the Pacific islands went slowly forward. Canoes carried Indonesian man far and wide across the giant ocean. Perhaps he even reached Central or South America, as some anthropologists hold; but the proof is not final. The main stream of American settlement came long, long before from Mongolian stock that crossed on a land bridge where now is Behring Strait. The American Indians show plainly the effects of age-long separation from Asia. Drifting slowly southward they reached Yucatan and Peru, and doubtless even in these distant millennia the savage tribes there living began to show a superior ability to progress. At that, they

were thousands of years behind Egypt and Sumer. They had not, in the sixteenth century A. D., when conquered by the Spaniards, gone much beyond the primitive picture-writing which in 3000 B. C. had been discarded on the Nile and the Euphrates.

Little is known of the African story. For some reason that is beyond understanding, the Negro races progressed more slowly than any peoples of the world save certain wanderers in Australia and Tasmania, who seem to have drifted thither by land and canoe and to have hung on to life there and little else. Climate can explain some of these failures. It cannot explain all.

CHAPTER XIV

THE STORY OF GREECE

The fame of Greece is one of the few glories time has not dimmed. The more historians have studied the course of civilizations, the deeper has become the admiration for the Greeks and the larger is seen to be the debt owing to them by every later people. There is only one aspect of this reverence which calls for a warning. It is apt sometimes to lead to a feeling that the Greeks did everything with measured perfection, that they were in fact a little more than human. That is the trouble with labelling works "classics" and holding them up as models. Perhaps the fact that the Greeks wore robes and that their best-known art was cut in white marble has aided this deification.

As a matter of record the Greeks were a most human and fallible race. There was nothing godlike about them except their art and their extraordinary freedom of mind. In the ordinary concerns of life they had as many weaknesses as anybody else: they were fickle and ungrateful toward their great men; they quarrelled, city with city; they could be cruel and stupid like any moderns. Greece is here set off as

the commencement of a new era and it deserves to be. But its greatness grew out of its surroundings and its time. The Greeks inherited the vices of the eastern Mediterranean and never climbed securely above them. Slavery was an accepted part of their social system. Wives were treated as grown-up children. Human sacrifice was but a few centuries distant from the peak of Athenian greatness, a shadow in the background that could not be forgotten. Primitive gods and ritual remained part of the highest Greek religion. Here were pioneers blazing their way out of dark forests, no demigods born in a Golden Age.

A few individuals had before looked at the universe and wondered about it. Now came a people who dared make wonder their habit of mind. They thought with less restraint from prejudice and custom, they speculated more freely, they doubted and guessed respecting more things than any people down to modern times. They did this, they freed their minds as completely as human beings can free their minds, in the midst of a rigid world, bound fast by tradition and custom for countless thousands of years, a world that never before had dreamed that minds could be free.

Greek art is still man's greatest inspiration to the love of beauty. The Greek freedom of mind remains an ideal toward which man is struggling—as the Greeks struggled. It is good to remember that these pioneers of thought, the greatest adventurers the world has ever seen, fought their way to triumph against legions of barbarians without and greater armies of barbarism within their souls than modern man can dream of. Their triumph is an immortal heritage of mankind. For them, inevitably, it could not last. Their greatness was no slowly risen and majestic sun. Rather was it a torch, waved briefly against a dark and windy sky.

I. THE AGE OF HEROES

The great years of Greece came between 550 and 300 B. C. After that began steady decline. Before came a thousand years which can be thought of as comprising the Dark Ages of Greece. Just as from 400 to 1000 A. D. barbarians overran Europe and plunged it back into the darkness from which it was beginning to emerge, so from 1500 B. C. onward for several hundred years the ancient Ægean peoples were overrun by the barbarians from the north, and civilization was not.

As has been seen, these barbarians had once been horsemen of the northern grass-lands and they spoke an Indo-European tongue. Whether they were blond and narrow-skulled, the Nordic type of man, or Alpine broad-heads, has been long debated by the anthropologists. There are lines in ancient Greek poetry which are usually taken to mean that the early heroes were fair-haired; but even this interpretation has been questioned. In any event, the chestnut-haired Alpine man would have seemed light-haired to the dark-haired Ægeans. One solution of the puzzle is to assume that Alpine and Nordic man were greatly mixed by this time. Certainly the Celts and Gauls whom Cæsar fought were tall and light-haired. But that was 1,000 years later. Another suggestion is that both breeds of men arrived in Greece. The invaders came in waves, over several centuries, from 1500 to 1200 B. C. Perhaps some were Nordic types, some Alpine.

The answer must in truth wait upon the solution of the whole Indo-European problem. If Alpine man was the Indo-European, then these barbarians who helped make Greece were broad-heads. If Nordic man spoke an Indo-European tongue, they may have been of Scandinavian or North German type. It would be most interesting to know which northern type of man helped make the Greek, but

any decision now is only a guess based largely on racial prejudice.

What is more clear is that these invaders came not as great hordes of people but in small tribes ruled by chieftains, a gradual drifting in of raiding, conquering northerners. At every period they were greatly outnumbered by the native Ægeans. They conquered partly because they had the advantage of iron weapons and horses to ride, more because they were by long training on the grass-lands adventurers and fighters. They brought their language, they contributed much to the religion and the social customs of the Greeks. The main artistic impulse came from the southern Mediterranean blood. Yet it is idle to attempt to carry such analysis far. The Greeks were a mongrel race, the product of intense fusion of at least two breeds of man. It was this mixture of north and south that became great, and neither north nor south alone can claim the glory. Some historians still write of the Greeks as Indo-Europeans or Aryans or Nordic. How completely misleading this usage is can now be realized.

A wonderful picture of these Dark Ages has come down in the "Iliad" and "Odyssey." These epics, the greatest in any literature, belong in that great chain of song chanted in Indo-European tongues from India to Ireland. They were composed to be publicly recited, not read. Eastward, in India and Persia, these early poets gave great thought to religion. From Greece westward, religion played a smaller part beside the tales of adventure.

The "Iliad" and "Odyssey" are full of the names of gods and their doings, to be sure. The Olympians they were called because they were supposed to dwell on Mount Olympus, a snow-capped peak, 10,000 feet high, in Thessaly on the northern boundary of Greece.* Wherever they lived

*The Olympic Games were named for a quite different place, the city of Olympia, in southwestern Greece, where these famous contests of all Greece were held. They came every four years, and the interval was called an Olympiad. The first Olympiad dates from 776 B. C.

they seem to modern minds an amazing array of gods and goddesses. For they behave much like the human heroes of the poems elevated to a nobler and more glorious plane. They hate and fight and laugh and make love and are noble and petty by turns much like mortals. A delightful and inspiring array of gods, sparkling with beauty and color—there is not a dull one on the list. But what have they to do with religion?

Upon the answer depends much of the character of the Greek people. There is a contrast often made by the historians which brings out the facts vividly. It is between the Greeks and the Hebrews. The Old Testament was composed between 1500 and 500 B. C. Homer falls within the same period. The events that they describe are more or less contemporaneous. The Trojan War—which furnishes the plot of the "Iliad"—was fought just after 1200 B. C. It was just before 1200 B. C. that the children of Israel crossed over Jordan and occupied Palestine. The Old Testament became the bible of the Hebrews and it is often said that Homer was the bible of the Greeks. It was certainly their most venerated book, but it was not a bible at all, for it was never viewed as an inspired revelation settling truth for all time. In that sense of the word the Greeks had no bible.

Right there begins the contrast between the Greek and Hebrew, and it is complete in every detail of the picture. The Hebrew character was formed in the desert and fixed by conquest and captivity. Its outlook was always sombre and tragic. The great achievement of its prophets was in leading the people away from their many gods of nature toward the one God, Jehovah. This was a noble flight of the human soul, one of the noblest in recorded time. But the God of the Hebrews also reflected the bitterness of their fate. He was conceived as a fierce and angry god, revengeful and jealous. Under the shadow of his majestic rule the Hebrew mind could not attain freedom.

This bigotry was, of course, a survival of savage life. As has been explained, there is only one way of thinking and acting in a savage community. Every one conforms as a matter of course. To break a custom is to incur nameless terrors, of which death at the hands of the community is the least to be dreaded. It is fear of the unknown, of the terrors of death and thunder and drought, that drives man into this rigid, self-protective group. Freedom of thought, the habit of guessing and doubting and speculating, is almost impossible in a savage tribe; and without such free-thinking, little progress can be made in reducing the unknown terrors which make savage customs as tightly binding as they are. Here is a vicious circle which man traversed through the ages and from which the Greeks were the first of all men to escape.

No one can pretend to understand how this came to be. It was a fortunate mixture of blood that produced this marvellous breed of man, and the laws of such mixture are utterly unfathomed. The most one can do is to see how the natural setting aided in coloring the minds of the Greeks and in giving them the outlook upon the world which they had. Neither the ancient Ægeans nor the new conquerors were lean men of the desert. The Cretans were a gay, fun-loving folk, alive to their finger-tips. Their bull scenes suggest the same love of color and beauty that makes the modern Spaniard love his toreadors and his bull-fights. They lived in a land of enchanted beauty, high peaks, soft plains, a warm sea, intensely blue, dotted with beckoning islands.

Into this mellow paradise came riding the men of the north. One can imagine the amazement of one of these tall horsemen as he first looked down upon the sea from a Thessalian hilltop and saw far below his first ship, a strange creature crawling over the sea upon its many legs. They were not amazed for long. Adventure and the love of a new scene were in the blood of these rovers, unforgotten

despite the generations they had spent at farming in the Danube plain. The Acheans were the first tribe to arrive, and it was by their name that the Greeks were often called. They were probably few in number. This was around 1500, and the northerners kept drifting in until the last great migration about 1200 B. C. brought the Dorians to the Peloponnesus and Crete. The echoes of this wild period have already been heard in Egypt and in Syria. Many of the Ægeans fled across seas, founding what were to become the great Greek cities of Asia Minor. Ionia this eastern shore of the Ægean was called and it will be heard from again. One fragment of peoples flying before the storm landed far to the south and became the Philistines of the Bible story, a thorn in the side of Palestine till David bested their giant Goliath.

These were bad centuries for the civilized Ægeans, but what a rare adventure for the invaders! Cities, rich and beautiful, to be sacked, wives to be had for the taking, islands beautiful beyond belief waiting dreamily for a strong conqueror—what more could heroes desire! There are suggestive parallels in the adventures of much later wanderers, Norsemen of the eleventh century A. D. Not numbers but boldness gave the victory. In 1035 A. D. one Robert Guiscard marched out of Normandy a pilgrim with one follower, and ended in Italy duke of Apulia and Calabria, prince of Salerno, and lord of Sicily. The story is not all blood and conquest. Good fighters are always in demand wherever there is a discontented nobleman or a disinherited queen. The throne seems to have descended through the female line in much of the Ægean; often the invaders may have won their kingdoms by marrying the queens thereof, with or without their complete assent.

The art of the region was wiped out by the barbarians. Of the beautiful Minoan work of Greece not a trace was kept alive. The pottery showed crude geometrical designs,

circles, squares, etc., like any early barbarian ware. Equally the writing disappeared. The Cretan script vanished before the illiterate northerners, and when the Greeks learned to write, long after 1000 B. C., it was with the alphabet already discussed, probably taken from Phœnicia, though perhaps containing relics of the Cretan characters.

In the mêlée the fate of religion was what might be expected. No austere belief in one god could develop in such an atmosphere. Rather did the ancient gods and goddesses of nature come to express perfectly the magnificent freedom of this reckless age. The language of the Indo-European northerners conquered, and so, in the main, did their religion. With their gods were united the most attractive of the nature gods and goddesses. The ruler of Olympus was Zeus.* His name tells much, for it is a Greek form of an Indo-European root meaning "bright" or "sky." Zeus was thus the descendant of the old sky-god of the northern grass-lands. He kept the title of Thunderbolt, and it was with lightning that he ruled the world. But he was far from the beautiful figure that Apollo made, the radiant young sun-god, most beloved of all the Greek gods. Of the goddesses, Athena ranked highest, came, indeed, to stand above Zeus and Apollo in the Greek heart. All that was noblest and best in Greece fell under her protection. She was wise and she was warlike. Helmeted and armed, keen-eyed, lofty and pure of look, she was yet lovely and gracious, and in her name the Greeks of Athens built their most beautiful temple and the most beautiful building of all time, the Parthenon. In all the long procession of ancient deities there is none to compare with Athena in nobility and beauty.

There were many other lesser gods and goddesses. Poseidon, ruler of the sea, shows traces of derivation from an

* Many of the Greek gods are better known under their later Roman names. Zeus was Jove or Jupiter, Athena became Minerva, Poseidon was Neptune, and Aphrodite Venus.

older Ægean god. Aphrodite, goddess of love, was adapted from an Eastern goddess known to the Phœnicians as Astarte. Dionysus was the god of the grape and of wine—Bacchus was his later name. At the lowest end there are minor spirits, half man, half animal, that suggest clearly the probable source from which the other gods were originally drawn. The centaurs had the bodies of horses, the head and shoulders of men. Pan and the satyrs had goats' horns and hoofs and shaggy legs. (Pan was the god of woods and flocks. His cloven hoofs were taken over by the early Christians for their devil.) Here one sees a god emerging from the animal. It is an interesting hypothesis that all gods thus developed out of animals into human form. Here is such advance as the gods of the Greeks showed over the earlier gods of the Ægean and of the Indo-Europeans. The ugly and terrifying monsters of primitive religion were banished, and in their place stood the beautiful beings of Olympus, always attractive if not always noble.

These facts suggest where Greek religion failed and also where it rendered an invaluable service. There could be no high and lasting faith and no advanced code of morality founded on such gods. There was beauty in their worship, but their variety and number could not kindle hearts as could the majestic conception of the Hebrew Jehovah. As for conduct, the morals of the Greek gods were too bad to count as a good example. One is witnessing here, in truth, the first separation of religion and morals. In primitive society, religion and custom are one and the same thing, and in custom are included what are now called morals; every question of right and wrong. In the early civilizations each religion developed its code of morals, like the Ten Commandments of the Old Testament, the written descendants of primitive custom. In all the great religions of modern times there is the same close relationship between religion

and conduct—in Christianity, in Buddhism, in Mohammedanism. In Greece religion ceased to be a controlling force upon men's conduct. It remained at its best a beautiful and shining inspiration. It did little to hold the Greek people to every-day virtue.

It must not be concluded that therefore the Greeks were a wanton people. Quite to the contrary, in the great centuries of Greece there was a peculiarly high and noble standard of living. Modern imitators of the Greeks sometimes talk and act as if the Athenians were lovers of luxury, Olympians revelling in beauty and satisfaction of the senses. They were nothing of the sort. This reckless freedom belonged in the Age of Heroes; it was centuries distant by the time of Pericles and Phidias. In that age the free mind of the Greek had worked out an ideal of conduct frugal and severe. "Nothing too much" was its rule, and its cardinal virtue was expressed in the word *sophrosyne*, which meant reason and moderation in all things. The Greeks sought a golden mean between Eastern asceticism, fasting, etc., and the glutting of the senses with enjoyment. The great works of the Greeks could not have been created in any other atmosphere, for self-control and long, stern effort are essential to great art.

The weak side of Greek morality was that it did not build for the future and could not endure among ordinary generations of mankind. The philosophic theories of right and wrong developed in Greece could not long lead the hearts of common man. Religion was and is necessary, and the religion of Greece could contribute nothing to the religion of the future. How Greek philosophy contributed to the philosophy of Christianity will appear later. Greek religion failed as a practical aid to weak humanity both in its own time and as a heritage for the future.

But that failure had its enormous compensation, as has been suggested. It left the Greek mind free to wonder

about the universe. The Indo-European tribes brought no temples run by a priestly class, and they seem to have destroyed the old system of the Ægeans. There were priests under the new Olympian religion, there was worship, there were sacrifices. The Greeks held to their ancient ritual, purified of its human sacrifice through the great centuries. But the priests were servants of the government, not a powerful, self-perpetuating class as in Egypt. They could lay no restraining hand on thought or speculation. The worship was more of a respected habit than a living faith; the Greeks whom we think of rightly as tremendous innovators built all their new works on the oldest foundations. So for the first time in the history of man the rigid bonds of custom and religion were loosed and the human mind stood forth open-eyed before the spectacle of life.

Before leaving this age, a word must be said of that most debated of all classical puzzles, the Homeric question. The older theory and the one still accepted by many authorities holds that there was a poet Homer who composed the "Iliad" and the "Odyssey," and that he lived at an early date, around 900 B. C. Perhaps he had heard earlier poems, recited by earlier bards, but the poems as they have come down were, in this theory, his own immortal work. Against this has developed the view that the poems were slowly built by generation after generation of bards, all of whom added and amended and revised. There may or may not have been a Homer in this theory. If there was, he may have been a bard of great genius who gave the poems their last heights of nobility and beauty; but he did not in any sense create them. Such a Homer may well have lived as late as 700 or 600 B. C. It is a rare puzzle, and shelves of volumes have been written on it. The second view has gained on the first in recent years. But no agreement has been reached or is in sight. Recent opinion tends to stress the conviction that, however largely the poems may have

derived from older works, a real Homer, of transcendent genius, actually lived and gave them their immortal form.

In any event, there is no doubt that the two poems are the greatest of epics and that they give a marvellous picture of the Heroic Age. No exact period is presented; it is Greece from 1300 to 1000 B. C. that lives before us, an age already fading into the dim past when the poems were written down. Bronze is still the popular material for weapons, but iron is coming in. The warriors use chariots drawn by horses. The society is a simple patriarchal state, unmistakably the mode of the invaders from the north. There is not much general fighting. Usually the leaders fight single-handed, as heroes should.

The scene is historic, the actual events are probably greatly distorted from their original setting. Their flavor is right, at that. The whole "Iliad" was built around a stolen wife. Great armies crossed the Ægean and fought ten years to win her back. It was a fight of Greeks against Greeks. Helen, the most beautiful woman in all Greece, was born in Sparta in the Peloponnesus. She was carried off by Paris, a Greek of Asia Minor, and taken to Troy, near the mouth of the Dardanelles. The "Odyssey" tells of the wanderings of Odysseus, better known in English under the Latin form of the name, Ulysses. Here is an echo of the same period when adventurers were voyaging from one isle to another and the whole Ægean was in a turmoil. It looks forward to the seafaring success of the later Greeks.

Turning back to the contrast between Greece and Palestine, one may say that one task of the human mind since the days of Greece has been to reconcile and unite the Greek and Hebrew points of view. To keep the mind free and at the same time hold the soul to a lofty religion and a high morality has been the problem of the Christian era. Under Christianity, freedom of mind disappeared for a thousand

years. It has returned in modern times, but the reconciliation with religion still remains to be achieved.

2. THE BEGINNING OF THE WEST

This newly mixed race of the Ægean has been known by the world as the Greeks. That was a later name for them, however, applied by the Romans. They, themselves, never used it. Beginning in Homer, and with an increasing sense of unity down to the great centuries, they called themselves Hellenes and their country Hellas. (The modern Greeks of to-day still hold to this older name.) The growth of this unity records an important event in the history of civilization, for it was the beginning of the West. The Hellenes were the first Western people. With them began that cleft between Asia and Europe which has separated East and West to this day and made understanding between the two greatest sections of the human race difficult.

This unity of the Hellenes is a hard thing to imagine clearly. Until Alexander came along and knocked all the Greeks into an empire, there was no political unity; and it might be said that in thus forcibly uniting the Hellenes, Alexander destroyed Hellas. Certainly its greatness swiftly faded. There were hundreds of independent Greek cities through the peak of Greek success. It is commonly said that the geography of Greece kept the Greeks thus apart, hedging them within narrow valleys by steep hills. There was undoubtedly a physical force here making for disunity. But the sea gave easy communication, and all the parts of Greece are so small and so closely and conveniently grouped that other disruptive forces, of character and custom, must have aided. The area of all ancient Greece, mainland, islands, and the Grecian coast of Asia Minor, was not as large as the State of Virginia. Scattered as this area was about the Ægean, if Athens is taken as a centre, the farthest Greeks lived within a radius of not more than 200 miles, the

distance between Buffalo and Detroit. When one reflects how rapidly and easily the scattered city kingdoms of Egypt and Babylon united under one rule, it can be seen how different was the Greek story and how powerful were the forces for local independence.

These small cities were the political unit and they were the patriotic unit. A Greek felt his most intense love for his city. His emotion was very local, born of the soil, like one's love for one's old home; and it was high and fine, the sort of glad willingness to sacrifice oneself that is seen in modern patriotism at its best. Indeed, this patriotism, this duty toward one's city, was the centre of Greek morality. There is nowadays no local fervor that compares with it, and one has to turn to our love of country to find a parallel.

What then of Hellas? This vaguer and larger unity rested upon the use of the same language, the worship of the same gods, and a sense of common race. For Hellas the Greek felt an emotion difficult for moderns to picture. The sense of a common lot and a common enemy that the American colonies shared at the outbreak of the Revolutionary War suggests it. But it never developed into a close federation as did the colonies during the war, or into a true nation as did the confederacy of America after the war. The confederacy worked poorly during the Revolution, all but losing the war by its weakness and looseness. The Greeks fought their great wars against Persia and Phœnicia through a far looser league; hardly anything more than a vague sense of common civilization. They won magnificently thereby, proving that a lofty emotion can sometimes work miracles rather than that it can be in the long run a substitute for sound political organization.

The common enemy that made all Hellenes feel their kinship was Persia. It is one of the confusing tragedies of history that the first great battle-line of East against West should have been drawn between these two peoples both

speaking Indo-European languages, both having blood of the northern grass-lands in their veins, and both showing something of the same pioneer fighting qualities. Had the Assyrian Empire raised the issue, the record would have been simpler and more logical. But while the Persians had brought much of the northern spirit into the highlands of Persia, they were mingling with a native people southern and Eastern in character, and were destined to become a truly Eastern nation. They were becoming Eastern precisely as the Greeks were becoming Western, and the contrast grew with each century.

This question of East and West is a puzzling one. How much is prejudice and how much racial differences? There was no East and West in the first civilizations save perhaps as one can detect a keener sense of freedom and individuality in Crete. Down to the Greeks all civilizations displayed certain common traits. There were few outstanding individuals, little explosion of thought or personality; there were chiefly great masses of resigned and patient toilers. The scene was level and monotonous. It could not be otherwise as long as primitive customs held men in their rigid bonds. It was the Greeks who first burst these bonds, broke up this monotony, and grew a breed of vigorous, widely diverging individuals. Broadly speaking, one can say that the West has followed the Greek lead, and the East has held closer to the ancient way. That is probably why one feels that Egypt was an Eastern nation; it was, in truth, neither Eastern nor Western but southern, and, of course, primitive.

At the risk of misleading by a metaphor, it may be said that the East has remained more vegetative, and the West has pursued farther and faster that course which the first squirming animal took when he invented a tail and began to wriggle around the sea. The East has covered the territory with a thick forest of sturdy men. They have not

shown great range of type and they have tended to stay put. Also, broadly speaking, they have not progressed as rapidly as the West. Man in the West has above all else been active and restless, moving about from nation to nation, from continent to continent, from idea to idea. He has abandoned the slow continuous growth of the East for the swifter method of trial and error. Thus roving about, exploding freely in this direction and that, he has developed more kinds of man, and more extreme types than has the East. But this metaphor, like all other metaphors, breaks down at various important points. One can hardly look to see the conservative trees spurt forward, develop brains or something better, and snatch the world away from man. That the slow-moving East may not some day overtake and pass the restless West is a negative that no far-sighted student of evolution will care to hazard. Western man has set himself to running errands across the seven seas and to the farthest corners of the earth. Eastern man has stayed at home and cultivated his own garden. In so doing he has stored up, especially in China, an enormous reservoir of energy and character, and who can say into what great civilization this force may not some day sweep the world!

If man originated in Asia (as is possible, though by no means certain), there was wave after wave of migration from the East to the West, and in this sense all Europeans may be regarded as children of Asia. Certain early inventions, bronze and iron, for example, were probably brought to Europe by these wanderers, and it may be that throughout savagery and barbarism Asia led the world. Coming to the ages of civilization, one finds that the religions of the East have profoundly influenced the West, down to the present. That is the limit of Eastern leadership. Outside of religion, the East has contributed little to the progress of civilization. As has been seen, the first civilizations, developed around the eastern end of the Mediterranean, were

neither Eastern nor Western in character. They were simply southern and primitive. These three civilizations probably antedated China and India, the first Eastern civilizations. At any rate, from neither China nor India did the West derive elements of culture in ancient times. And from the hour that Greece reached her full height and the Western course was clearly charted, the leadership of the West was beyond debate.

Probably the reason for the feeling that the Orient is older in wisdom and civilization is the fact that the two great civilizations of Asia, China and India, have had a far longer continuous existence than any one Western nation. The story of the Western world has been repeatedly broken by swift rise and fall, by migration and conquest. The torch of civilization has flared up brightly and again burned low; it has been passed from hand to hand as nations came and went. This changing, shifting record of the West has been compelled by the inherent restlessness of Western character. But there has been a distinctively Western tradition of high civilization that looks all the way back to Greece in 500 B. C. Asia has no great civilizations as old, has yet to equal Greece, in fact, and her achievements are few beside those of the West.

This first contest between East and West, between Persia and Greece, marked the final growth of Hellas. The Persian wars came in the years after 500 B. C., and through her victories in them Greece gained her full stature. Little needs to be remembered of the years between the Dark Ages and this burst of glory. They were long centuries of slow development. The alphabet was rewon, and writing began again. Art slowly improved. There was an age in which the nobles overcame the chiefs or kings and ruled the cities—a period of oligarchy. Afterward, in many of the cities, popular leaders overthrew the nobles and ruled as tyrants, often wise and benevolent. The Greek word from which the word tyrant comes had at first none

of the evil flavor which moderns have given it. Some of these leaders have come down as figures of common speech. Solon of Athens refused to become tyrant, but was so trusted by his fellow citizens that they gave him the power of dictator to reform the laws and grant the poor and oppressed a better chance in life. He was the first great Greek statesman, and Americans still call their legislators "solons" after him to-day. Also he was one of the Seven Wise Men of Greece, sages to whom the Greeks long looked back for wisdom. It was to him that is credited the very Greek motto: "Nothing in excess." The Greeks made enormous material progress under the oligarchies and the tyrants; their ships sailed far and wide over the Mediterranean, beating the Phœnicians at their own trade; their colonists founded cities from the Black Sea to Spain. All southern Italy became Greek soil; was, indeed, known as Great Greece. Greek adventurers built the city of Syracuse in Sicily and established a town where now is Marseilles on the coast of France.

But the disunity of Greece held even through this period of strong men. The most striking feature, really, was the fact that there were many strong men and that no one strong man marched out upon a career of conquest and made one empire of all the city kingdoms as had happened to all the other peoples of the ancient world. The most that happened was the growth of certain city-states, and especially Athens and Sparta, to positions of importance. The kings of Sparta conquered much of the Peloponnesus; the Athenians united all their small peninsula under their rule; that is to say, an area about the size of Rhode Island.

Such was the confusion of small, quarrelling states which came into a life-and-death struggle with the Great Persian Empire, the conquerors of all the older empires to the east. The contest lasted twenty years, reaching its climax in 490 and again in 479 B. C., when were decided two of the most

famous battles of history—the one by land, the other by sea—Marathon and Salamis. It was the Athenians who had stirred Persia to the attack by going to the help of their kinsmen, the Ionians, across the Ægean in Asia Minor. Their act was the first outward sign of that Hellenic unity based on language and religion, upon Homer and the gods of Olympus. It was a small and futile expedition that they sent against Darius, headed westward for the conquest of Asia Minor and the Greek islands. It only irritated the great king, and the story goes that he bade a slave repeat to him daily the words: "Sire, remember the Athenians." Had Darius lived he might have, in due time, conquered Greece, for he was a great general and organizer. He died, and the orientalized Xerxes sent his fleets to disaster at Salamis.

Marathon was not a great battle in a military sense. It was like Bunker Hill, important chiefly for the confidence it gave to the lesser armies struggling against a great military reputation. Till then no soldiers had been able to withstand the Persian archers. On the narrow coast plain of Marathon, northeast of Athens, 10,000 Greek hoplites, or heavy infantry, charged 50,000 Persians, and the heavy shock beat them and drove them back in disorder to their ships. The Greek army was almost entirely Athenian. (The slow and superstitious Spartans failed to turn up because the moon was not in the right quarter for fighting; some such silliness usually handicapped Greek efforts to get together.) As a result, the Athenians gained tremendously in self-confidence and in the respect of all Hellas.

The great decision came at Salamis. Xerxes himself travelled all the way from Persia to witness his expected triumph, bringing his throne with him. A tremendous army for those days, numbering some 200,000 men, marched across the Hellespont and around through Thrace and down upon Athens. A fleet of a thousand ships set

sail across the Ægean. In the Persian forces fought all the peoples of the Eastern empire from Egypt in the west to Bactria in the east, in farthest Afghanistan. Their omnipotent ruler could summon them at will and order them where he pleased. There was no chance for rivalry or dispute on the Persian side. All the might of despotism fought for the East that day.

For the West there was a people just beginning a new civilization, divided against themselves into scores of petty states, without even a league of defense, united only by a common speech and common gods. The chances against they seemed overwhelming. Why they won is not clear, and one must avoid thinking that historians as yet understand the causes of such events. There were two obvious factors in the success of the Hellenes. One was the courage, the patriotism, and the fighting ability of the Greeks. The other was one man, Themistocles (*c.* 514–449 B. C.), statesman and general, one of the great heroes who sometimes appear in such crises. Subtract what Themistocles did and it is hard to see how the Greeks could possibly have won. Equally, without the Hellenistic courage—that superior morale which has decided almost every war—Themistocles could not have managed a victory.

There is a school of historians who hold to the "great man" theory of history, who contend that it is always a great man who turns the course of events. It was Themistocles who made Greek independence possible and Greek history what it was. At the other extreme are historians who stress the underlying factors of race. The Greeks won because they were the Greeks, born with that rare ability which cannot be defeated. Great men helped and hastened their triumph, but, one way or another, they were bound to prevail. This theory looks to bodies as well as souls, to everything that made the Greek what he was; but it tends to lay stress on creations of the mind, language,

government, religion, art, as the best indications of character and race.

To complete this survey of historical theory, one other point of view must be mentioned, the economic. It has already been suggested in considering the effects of geography upon peoples. When the nomads left the grass-lands, driven out by drought, they were impelled by an economic need. Hunger is the great fact around which the economic needs of man centre. He develops other needs as he grows more civilized, the desire for clothing, shelter, comforts, and luxuries. Hunger remains active and controlling. Man has to toil constantly to live; he has never been, he is not to-day, more than a few days or weeks ahead of starvation. Beginning at the simplest level of hunting and farming for his own family needs, man has developed all the complicated system of modern industry and finance under which few men grow their own food or make things for themselves. At bottom the great fact is unchanged. Man still toils to live. If all mankind stopped toiling for a brief time the race would starve to death.

Naturally, therefore, this need of food and the day's work that produces it have profoundly affected the life and movements of man. The irruption of the Semitic tribes from Arabia, of the Indo-European tribes from the northern grass-lands, are obvious examples of economic movements. Equally, the long westward thrust across Europe, across the Atlantic to America, and across America, can be ascribed to the press of population, to the need of new lands to grow food for the increasing millions. The Civil War in America in this view had an economic cause, the fact that slavery paid in the Southern States and did not in the North. An economic motive has played its part in almost everything that man has done.

These are the three main theories of history: the hero theory, the race theory, and the theory of economics. The

first is the oldest; history began as a history of great men, of kings and generals and their conspicuous doings, battles, conquests, births, marriages, and deaths. The stream of history has been gradually widened to include the great racial institutions and the character of the great mass of the people. Finally there has been developed in recent years the economic aspect of history. It is much the most influential theory to-day. It is being brilliantly applied in every field of history. It grows out of geography and it centres around a man's stomach; it is essentially the materialistic view of man, as a child of nature, an animal. Its importance cannot be questioned. Historians are but just beginning to understand how the deeds of nations, of ourselves when we vote or argue, are influenced, often unconsciously, by economic motives. But in the excitement of the new discovery one need not lose sight of the other two factors, as some advocates of the economic theory have done.

The effort here will be to give the facts of history, pointing out wherein they support the several theories, without attempting to pass judgment upon them. The truth may well be that all these factors are of major importance. Certainly in Greece it was an economic factor, drought in the grass-lands, that sent the northern men down into Greece and made the Greek race; and it was Greek character that won against Persian character; but whether it would have won without the leadership of Themistocles no man can say.

Themistocles not only manœuvred the victory at Salamis by clever strategy; what was more important, he organized it in the years before by persuading Athens to become a great naval power, building a vast fleet of war-ships and fortifying her harbors. This question of sea power recurs again and again in history; almost always has the nation with the strongest fleets ultimately prevailed. The hardest fight that Themistocles faced was with his own people. By this time Athens was well on the road to becoming a democ-

racy. Only by eloquence and luck was Themistocles able to gain the mastery of Athens and prepare to meet the Persians. Under his sound strategy the Greek fleet was to strike first, the Greek armies delaying the Persian land-forces as best they could without coming to the final issue. It was while waiting for the meeting of the fleets that the battle of Thermopylæ was fought. In this narrow pass, not fifty feet wide, to the north of Athens, between the mountains and the sea, 300 Spartan soldiers under Leonidas held back the Persian host for three days, and finally died in their tracks rather than surrender. All Hellas was thrilled by their magnificent devotion and heartened to renewed effort. Meantime the great hosts of Xerxes, archers and horsemen, swept on. The fleets fought an indecisive battle to the north. The Persian armies entered Athens and put it to the torch. From the island of Salamis the refugees from Athens could see the smoking and blackened ruins of their city. In the narrow bay between Salamis and Athens, Themistocles had concentrated the entire Greek fleet, and the fate of Greece, the fate, perhaps, of the whole Western world, met their final decision in a few hours of crashing prows. From his golden throne set on a hillside facing Salamis, Xerxes watched the scene. A vivid picture of the battle has come down from another eye-witness, the Greek poet Æschylus, who fought as a youth in an Athenian ship. The Greek trumpets sound at dawn, the pæan is sung, and the rows of oars bite the sea and drive the bronze prows against the Persian ships. The trireme was the war-ship of the day; long and lean of hull, driven by a hundred and seventy rowers at as many oars, it could deliver a blow like a battering-ram. In the narrow channels of Salamis the weight of Persian numbers counted for little, the dash and seamanship of the Greeks counted for much. At the first onset, the Persian line was thrown into disorder. Following up their advantage, the Greeks struck

right and left, riding over banks of oars, capsizing the enemy triremes, crashing through their sides so that they swiftly sank. The victory became a rout, and by nightfall the broken remnants of the great king's fleet were flying eastward in hopeless disarray. Surrounded by his magnificent court, Xerxes watched the battle at his feet with horror turning to dread. Long before the end, he rose from his throne, rent his robes with a loud cry, and fled the scene.

The West was saved. There was a great land-battle on the Isthmus of Corinth, in which the Spartan soldiers fought as magnificently as had the Athenians at Salamis. Xerxes still dreamed of conquest, but his cause was doomed to failure. The peoples of Hellas were become great and confident; the power of the Persian even at home was waning. To complete the discomfiture of the East, a thrust farther west by Carthage against Syracuse met the same fate. Phœnicians had furnished the bulk of the Persian fleet at Salamis; their colony in the western Mediterranean sent an expedition, perhaps by agreement with Persia, against the Greek colonists in Sicily. They were routed by the Greek tyrant of Syracuse, by this time grown a great and wealthy city.

This contest of East and West was renewed again and again. Four times since have Eastern armies invaded Europe: first, in the second century B. C. with the Carthaginians in their death-struggle against Rome; second, the sweep of the Huns across Europe in the fifth century A. D.; third, the Arabian thrust up through Spain in the seventh century A. D.; fourth, the conquests of the Turks since 1000 A. D. in the Balkans. The West has not invaded the East as effectively. Alexander's empire in the fourth century B. C. and the futile conquests of the Crusaders in the Middle Ages complete the list down to modern times. In recent centuries have come the conquest of col-

onies and the peaceful invasion by Western finance and business, the end of which is not in sight.

Here, in 480 B. C., what was settled beyond debate was the independence of the Western world and its freedom to grow in its own way.

3. THE GOLDEN AGE OF GREECE

From the blackened ruins of Old Athens there arose within fifty years the most beautiful buildings the world has seen. Within a hundred years there was composed a series of dramas, tragedies, and comedies which still rank with the greatest of literature. Within a hundred and fifty years three great philosophers had lived and died, whose work remained for 2,000 years the basis of every speculation about the universe. All this at Athens. Science grew far more slowly and was the labor of all Greece, reaching its climax in the mathematicians of Alexandria within a period of 250 years after Salamis. In the nature of things, this labor of accurate study could only make brilliant beginnings. It was in art, poetry, and philosophy that the Golden Age of Greece was supreme. Its period ran from 480 to 330 B. C., from Salamis to the rise of Alexander the Great and the end of the free city-state. It is this century and a half, the most brilliant and crowded period of achievement the world has seen, that opens.

Athens was a fair-sized city by this time, of perhaps 100,000 inhabitants, as large as Springfield, Massachusetts, or Des Moines, Iowa. The living quarters of the town were modest. The streets were narrow and crooked, there were no great houses or magnificent palaces. The Athenian's home was as simple as a bungalow. It was one or two stories high and flat-roofed; the walls of sun-dried brick faced with stucco; the rooms opening on a small interior court like the patio of a Mexican house. Much of the

life of the family passed in this court under the open sky. There were few windows and no chimneys. The sanitation was grossly inferior to that of the Cretan palaces of a thousand years earlier or of any modern bungalow. The rooms were as sparsely furnished as a modern Japanese room. There were a few chairs of simple design, couches, small tables, vases.

The whole glory of Athens was out-of-doors, at every open place where stood beautiful monuments, and aloft on the Acropolis, the hill where rose the Parthenon and the other temples of the city. It was outdoors that the Athenians chiefly lived. Never has there been a people so fond of meeting friends and talking, so social. Government was the active concern of every freeman. The life of every private citizen was a public affair. There was an enthusiasm for the city, a fervent interest in making beautiful her temples that is rather hard for modern men to understand. It is not far from the truth to say that the Athenians worshipped their city. They certainly worshipped her gods, and looked up to the gleaming marbles of the Acropolis as to the shrine of all their hopes and loves.

The years that saw the building of these temples are linked with two great names: Pericles (490–429 B. C.) and Phidias. It is sometimes called the Periclean age, after the statesman whose imagination and leadership made the greatness of Athens possible. Phidias, the sculptor, was his lifelong friend. Little is known of the life of Phidias, and no work certainly from his hand has survived. But the ancients gave him the credit for directing and inspiring the Parthenon, and that is enough glory for one man. Certainly a number of great sculptors worked under Phidias to carve the statues that surround the Parthenon. The general opinion of artists and of the world ranks this work as the greatest of all sculpture, certainly not surpassed since, probably not equalled. Even as known to-day, battered and

worn, carried far from their original settings, they speak with a nobility and beauty that are overwhelming.

There were other temples on the Acropolis besides the Parthenon, and against its southerly slope rose, tier on tier, the seats of the huge open-air theatre of Dionysus. The surface of the hill was a table of flat rock 200 feet above the city, and farthest seen of all upon it stood a colossal statue of Athena, 30 feet tall, the gleam of whose gilded spear and helmet was the first sign of home that the returning Greek mariner saw raised above the horizon. The Parthenon equally was dedicated to Athena. It was a tiny building by comparison with the Great Pyramids or the temples of Thebes or the palaces of Nineveh or Babylon. It depended wholly upon its perfect proportions and its dignity of outline for its effect. Having these perfections, it stood in greater majesty than all the grandiose bulks of the East.

All this stood radiant and sun-shot beneath the brilliant Grecian sky, surrounded by olive-clad hills, looking out upon a sea as intensely blue as the deepest ocean. To this day visitors who climb to the Acropolis, ruined though it be, cannot but feel something of the same worship of beauty which was the daily religion of the Greeks.

The Athenians of this period had a truly direct rule of the people. Every citizen took his turn as a legislator, judge, and executive. The democracy of Athens was complete as far as it went, but it included only a small portion of the population. Only one Athenian man in five was a citizen. The other four were slaves or aliens, without the right to vote or become citizens. Athenian democracy, as direct as a New England town meeting, could work, because the entire voting population could actually be assembled in one gathering for debate.

The assembly included every citizen and it met four times every month—outdoors, like every Athenian gathering. A council or senate of 500 chosen by lot acted as a standing

committee to prepare business for the assembly and so on. In this council the members took turns, fifty at a time, doing the executive business of the city, and from each fifty one person was chosen by lot to be at the head of the government for twenty-four hours. This seems a strange haphazard way of government by contrast with our modern theories of electing the best-qualified man for each job. But modern democracies have been none too successful in choosing wise and expert representatives, and it must be remembered how carefully Athenians were trained from boyhood for public service.

There was one kind of executive whom the Athenians did not choose by lot. That was the strategus, or general. There were ten of these generals, and the ten elected a leader. Pericles was chosen chief strategus in 460, and was re-elected to the post year after year. It was by the commanding influence which this semimilitary office gave him and his great persuasive powers in addressing the assembly that he was able to lead Athens to her greatest heights. Nominally Athens was a pure democracy governed directly by her citizens throughout this period. In fact, during her greatest years her voters turned over the reins of government to one able man.

The Athenians played their part in the great festivals as well as in government. These were all religious; most of them celebrated the seasons, the beginning of spring or the autumn wine-making. The greatest of all was in honor of Athena and occurred every fourth year. It fell in July and was the great national holiday. There was a public competition for the delivery of passages of Homer, an art that every Athenian boy learned. There were competitions in music. The athletic contests included running, jumping, wrestling, spear-throwing, discus-throwing, and a race for men in full armor. Boys raced against boys, youths against youths, men against men; all the manhood of Athens played its part.

More interesting to the historian was the yearly spring feast of Dionysus. As was noted in connection with primitive religions, this was simply one of the common festivals met with all over the world wherein primitive man celebrated the end of winter and the budding of new life in trees and turf and plant. Just how the idea of a god of spring grew out of these rites is not clear. Nor are the later steps understood by which the spring festival in honor of a god grew into a stately drama telling the tragic tale of Greek heroes. Religious ritual does not inevitably turn into great art or any art. Our North American Indians still dance their rain dances and other dances corresponding to these ancient festivals of Dionysus. They have held them true to their original purpose, and beautiful and impressive as the dances often are, they are religious before they are art. The development of Greek drama from Greek ritual was an extraordinary flight of genius, and little more can be said in explanation.

Moderns are so accustomed to thinking of the theatre as designed to give pleasure that it is hard for one to realize the religious atmosphere which the Greek tragedies retained about them. The nearest parallel lies in the miracle and mystery plays of the Middle Ages. The Greek plays came as part of the spring feast of Dionysus, and while that feast included revels, it was none the less worship, and the Athenians attended in a spirit of worship.

There were three great names in Greek tragedy—Æschylus, Sophocles, and Euripides; in comedy Aristophanes stood on the same level. The four must be ranked among the greatest dramatists of all literature. They followed one another about a generation apart in the order named, and all their work fell within the fifth century.

The first, and in some respects the greatest, Æschylus (525–456 B. C.), fought at Salamis, and one of his most popular plays, the "Persæ," told the story of that great sea-

fight in language of unforgetable splendor. He also fought at Marathon, and it is a striking fact that when he came to write his own epitaph, he made no mention of his famous tragedies, and recorded only his "good soldierhood" at Marathon. There is good reason to believe that he was the great innovator who took the crude material of Dionysiac ritual, somewhat improved by earlier poets, and made of it a great art form. The verse of Sophocles (495–406 B. C.) is smoother, his plots better planned, his was a more classical mind, paying that high regard for form which often follows such a great burst of imagination and invention as marked the work of Æschylus. In sharp contrast stood Euripides (480–406 B. C.), a great poet, a solitary rebel continually at war with his fellow men. He wrote his plays in a cave by the sea at Salamis. He died in Macedonia, driven out of Athens by sheer unpopularity. Æschylus was the child of a heroic battle for freedom; Euripides lived in the shadow of civil war—the long struggle with Sparta, which was to exhaust both states. The temper of Athens was changing swiftly from 450 to 400 B. C. Doubts were beginning to cloud faith in the old gods and heroes.

Having sat through three tragedies of a morning in the Dionysiac festival, the Athenians wanted comedy in the afternoon, and they had it. There are few modern tragedies as lofty as the works of Æschylus and there are few modern comedies as broad as those of Aristophanes (*c.* 448–385 B. C.). Yet satire was the essence of every play. The "Wasps" made fun of the Athenian love for sitting on juries; the "Frogs" parodied the famous writers of tragedies; the "Birds," his greatest work, satirized all society. A sense of humor that held few things too sacred to be tested by it was the first possession of an Athenian.

Homer came out of the Eastern Greeks, Sappho as well; literature first developed among those Ionians of Asia Minor and its islands who probably represented the purest

breed of Ægeans driven thither by the invading northmen. The same was true in philosophy. A group of Ionian wise men were the pioneers whose thought is to be regarded as a forerunner of both philosophy and science. One of them was Anaximander of Miletus, who, in the sixth century B. C., had a glimpse of evolution and the Darwinian theory of natural selection. Thales preceded him; Pythagoras and Heraclitus came soon after, both founders of schools of thought that influenced minds for generations. One of the greatest was Democritus, who conceived the atom four centuries B. C. Many of their ideas, especially on those subjects as to which modern science has brought accurate knowledge, seem to-day childish. Yet the importance of this group of thinkers in the history of the human mind is great, for they were the first human beings to wonder about the universe, observe its doings, and attempt to understand how they came to pass.

The development of science has been a long story. The arts reached their perfection early. As between philosophy and science, the former progressed more rapidly for the reason that it demanded a smaller basis of detailed observation upon which to proceed; it is far more a matter of speculation. In modern times a sharp distinction is made between philosophy and science. By science, in common usage, is meant the natural sciences, astronomy, chemistry, physics, etc., which attempt to describe the universe in detail by stating its activities in general rules or laws. Philosophy is concerned with the general theory of the universe. It aims to take the learning of all the sciences and build thereof a unified structure. It seeks to answer questions as to the nature and origin of the universe and whether one can really know anything. Many of these questions are the same questions for which religion offers answers; but whereas acceptance of these religious answers depends largely upon faith, the aim of philosophy is to find

answers based upon logic and reason alone, exactly as in the sciences.

The Ionian sages had little to build on. The aims of the wise men of Egypt and Chaldea were practical—the building of a pyramid by rule of thumb, or the foretelling of the future by the stars. They had no curiosity about the why and wherefore of the universe, or, if they had, the rigid bonds of their religion and customs prevented their minds from freely speculating about such questions. There was no philosophy whatever before the Ionian Greeks. There was elementary arithmetic in Egypt, also one or two inaccurate rules for calculating measurements of pyramids. There was no theory whatever back of these beginnings of mathematics. The Babylonians observed the stars carefully in order to make astrological calculations. But they attempted no explanation of such events as they observed —eclipses, for example—and lacking scientific knowledge to construct an accurate calendar, their astronomical records were of slight value. The Greeks took from them the knowledge that celestial events occurred in cycles and little more.

Greek art was built on a rich background of Ægean and Egyptian work. Greek philosophy and science had everything to create. The Greeks inherited as intellectual equipment an alphabet and a set of numbers. These were an inestimable advantage. How great a task the invention of an alphabet was, the history of Egypt shows. It was absolutely essential to further progress, and the Greeks began with this equipment ready to hand. In minimizing the slight rudiments of science inherited by the Greeks, one must not overlook this other priceless gift.

Throughout the later years of Athens there was trudging about her streets one of the most original men who ever lived. His name was Socrates, and he was the first great questioner (469?–399 B. C.). He had a short, flat nose

and a stocky body, wore shabby clothes and went barefoot. Also he was the son of a stone-mason. Yet such was the charm of his talk, of his keen questions and limpid mind, that the most distinguished citizens made him welcome, and a host of young men looked up to him as master.

His death was one of many disgraces that marked the government of Athens by the generations that succeeded Pericles. These years were still in the Golden Age so far as the work of the Greek mind was concerned. In every matter of government it was in an era of blundering and fickleness and weak vindictiveness. Probably never has a democratic government been operated by a citizenry as generally intelligent as that of Athens at this time; probably never has there been an equal record of misgovernment. A portion of the blame can be placed on the machinery of Athenian government; a direct democracy in which every decision must be made directly by thousands of citizens assembled in a meeting presents an almost hopeless problem. But this failure to develop better political machinery was a failure of Athenian ability. Political sense was the weakest spot in the Greek mind.

There is no need to trace the course of the three ill-fated Peloponnesian wars (459–404 B. C.) that ended the power of Athens for all time. The Athenian democracy blundered repeatedly in directing its campaigns. In its desperation it became cruel and vindictive. Some of its mistakes were due to the leadership of a handsome young Athenian, Alcibiades (*c.* 450–404 B. C.), who had ample brains but no honesty. When his city turned against him, he promptly went over to the enemy and aided the Spartans to conquer and destroy the Athenian army that was besieging Syracuse.

It was this beaten and humiliated Athens which put Socrates to death in 399 B. C. He was in his seventieth year, and it must have seemed a little ridiculous to kill an

old man for preaching what he had preached all his life. The prosecution was brought by honest enough conservatives, who felt that Socrates had been in some way responsible for the demoralization of their city. He took his trial with calmness, refused any compromise, and faced death without a tremor. He was perfectly willing to die in what he felt to be the cause of truth. The whole story of his end is in the writings of Plato, and there are few nobler pictures in history than that of this rugged old fighter laying down his life amid his grieving friends, himself calm and resolute and glad.

Plato (427–347 B. C.) was twenty-eight years old when Socrates died. The death was the great tragedy of his life and he never escaped from its shadow. He wrote five works about his old master, defending him, praising him, giving his ideas in the form of supposed conversations with him, describing his last hours. His favorite form of writing was the dialogue, like the speech of a play, and it is the dialogues of Plato that rank his name with the greatest of all prose-writers. His ideal of government was the rule of a young and benevolent tyrant with a wise philosopher at his elbow. This view he held to despite the fact that his efforts to be such an aid to the tyrant of Syracuse were futile and nearly cost him his life. Plato's whole life was a failure in so far as he essayed to hitch his ideas to deeds. He was essentially a poet, a dreamer, though his exquisitely clear brain permitted none of the vagueness of most dreams.

Plato died the greatest intellectual hero of his age, worshipped by all Hellas. A myth speedily spread after his death declaring him to be the son of Apollo. The force of his philosophy was felt for centuries, profoundly influenced the development of the Christian Church, and is still potent in modern times. He has been accurately termed "a well-spring of European thought." His first interest was in morals and his central thesis identified the true with

the good. It is impossible to summarize his many far-flung theories or even define his point of view, for he expressed himself imaginatively, creatively, more as a poet than a philosopher, and his philosophy has meant different things to different generations.

From the historian's point of view, the most important result of Platonism was that it inspired a school of mystical philosophy and religion, called Neo-Platonism, for which Plato's views held no logical warrant. The case is a good illustration of how men can be influenced by the emotional appeal of a philosophy without accepting its rational content. A considerable expression of the Christian faith was the product of this influence.

Two opposing outlooks of the human mind are involved. One turns toward the material world and tends to explain the whole universe, mind included, in terms of matter. The other is more concerned in non-material things, and tends to see eternal verities, whether God or the order of the universe, either as the only reality or, at any rate, as the basic reality of which material things are the expression. No exact dividing line can be drawn. A wide range of theory is possible from each point of view. Materialism is the common name for the first and it might seem that idealism would be an accurate term for the second. But modern philosophers use idealism in a limited sense to designate an answer to a preliminary and quite different question, not as to the basic reality of the universe but as to what man can know. The theory that man can know only what is in mind—finite or infinite—is called idealism. The theory that he can be sure of the existence of the external world is called realism.* Of course, the idealist, in this technical sense, necessarily takes the non-materialistic view of the world—his theory of knowledge concedes the existence of

* In the Middle Ages, by a confusing reversal of phraseology, realism was used by the scholastics to designate a particular type of non-materialistic philosophy. Opposed to it was nominalism, materialistic in tendency. The former became the orthodox Christian philosophy.

only mind-stuff. But the realist, pursuing his study of the external world, can take either the materialistic view or the non-materialistic.

Now Plato was a realist in this sense, for he assumed the existence of an external world which man could know. But he was by every instinct of his nature not a materialist, and it was this outlook which made easy the turn toward mysticism and, in later minds, developed from his philosophy a highly emotional religion. Plato conceived a world beyond the reach of the senses, an unchangeable world of essential entities like justice, triangle, and man. He used the word "ideas" for these elements of the non-material world and therefrom has flowed much confusion, for he meant nothing as fleeting and dependent upon man as a thought but rather the enduring and fundamental order of the universe which man could discover but in no sense create. "Universals" is a safer and more accurate name for the Platonic "ideas."

This beautiful and logical conception of a world beyond the senses fitted perfectly with the mystic's rejection of earthly things as vanity and the pursuit of an ecstatic union with God. Neo-Platonism developed in Alexandria from the third century onward and it drew material from many sources, partly Eastern. Plotinus (204?–270?) was its greatest mind but Plato was its prophet. The faith represented the twilight of Greek philosophy and as a religion it was overwhelmed by Christianity. Its historical importance rests in the fact that Christian mysticism, with its accompanying asceticism, derived largely from this emotional descendant of Athenian wisdom.

By one of the accidents which sometimes turn the course of history neither Socrates nor Plato but Aristotle (384–322 B. C.), Plato's disciple, passed on Greek wisdom to the Middle Ages of Europe. His writings happened to be the ones that were first discovered after the long night of the Dark Ages that intervened. They thus had profound in-

fluence upon the course of mediæval thought. Aristotle possessed an encyclopædic mind. He was a student of philosophy, but he was more keenly interested in observing the facts of plant life and every other part of the universe, precisely like a modern scientist. He lacked the means, such as the microscope, for accurate observation. Also, the sciences were too young to possess a large body of observed facts. But within these limitations he possessed a truly scientific spirit and laid the groundwork for many of the sciences. He wrote voluminously and upon every conceivable subject, from art and rhetoric to astronomy and economics. He accepted the Platonic "theory of ideas" in a restricted form, but his interest in the physical world gave him a totally different outlook from that of his teacher. Hence came the remark of Coleridge that every one is born into the world either a Platonist or an Aristotelian. Translated into current equivalents, it might be said that every man is born either a poet or a scientist.

Two other later schools of Greek philosophy had an enduring effect upon the beliefs of men, the Epicurean and the Stoic. Both dealt with conduct as well as metaphysics and both have influenced ethical standards to this day. Epicurus (342–270 B. C.) viewed pleasure as the one end of life; but the pleasure which he conceived was to be gained by living wisely, nobly, and righteously. This policy, which for its founder was a grave and prudent avoidance of pain, became in some later followers, and stands to-day in the general mind, a headlong pursuit of sensuous pleasure. Yet it could inspire the great epic philosopher of Rome, Lucretius; and much of the recent attitude toward life, including the return to nature that Rousseau preached, is related to the Epicurean point of view. The Stoic philosophy was founded by Zeno at about the same time that Epicurus gathered his disciples. He was a Phœnician and his ideas centred in a rational morality, in sharp contrast

with the lofty beauties of Platonism or the frank unmorality of Epicureanism. It was the sternest development of Stoicism which later appealed to the Roman character. The Eastern earnestness of the philosophy fitted well with the simplicity, the devotion to duty, the calm endurance, of the Roman at his best.

The active exploring minds of the Greeks thrust in every direction. The first historian was Herodotus (*c.* 484–425 B. C.), a Greek born in Asia Minor in the time of Pericles. He travelled afar, to Egypt and the East, among the Greek isles and westward to Italy, collecting facts, and gave to Athens a history of the world, full of valuable records as well as myths and plain gossip, and still delightful reading. A generation later came Thucydides, the first historian in the modern sense. He discarded the myths and explanations of the past and sought causes in the actions of men instead of in the will of the gods. The founder of scientific medicine was Hippocrates, whose name is preserved to-day in the oath of professional secrecy which every physician takes. Oratory naturally reached a high level in the democracy of Athens, culminating in the classic simplicity of Demosthenes (*c.* 384–322 B. C.). This much-debated figure has been praised as an example of devoted patriotism and damned as a demagogue. In the heat of political combat Demosthenes was not always accurate in his facts or fair to his opponents or statesmanlike in his proposals. On the other hand, he uttered and inspired a noble and unselfish patriotism.

These final years of Greece held many years of outward glory and conquest. In Macedonia to the northeast had come to power a newer breed of Greeks, of ruder northern stock but little touched by the civilizing influences of the south. They were great horsemen and great fighters; in their armies the horse for the first time rode upon a European battle-field. The Macedonians can be thought of as

descendants of the original Indo-European invaders, horsemen of the north but slightly mingled with the older races of the soil. They were still barbarians a century after Pericles.

King Philip of Macedonia admired the culture of Greece and absorbed much of it. He procured Aristotle as a tutor for his son, Alexander, and the latter grew up with an intense love of Homer and everything Hellenic. Yet neither really comprehended the heart of the Greek spirit. That intense love of freedom, of independent action, that kept Hellas a thing of the spirit rather than of external forms, meant nothing to King Philip, who saw only the weakness of its disunity and nothing of its service to imagination and the growth of the mind. He conquered most of the Greek states and planned to unite all Hellas in one empire. He was stabbed to death by conspirators, and his son Alexander, succeeding to his empire, marched out upon the most extraordinary series of conquests the world has ever seen.

Alexander (356–323 B. C.) was twenty years old when he became ruler. He died at the age of thirty-three, having reigned thirteen years. In that time he subdued all Greece, routed the Persian armies in Asia Minor, freeing the eastern Greeks, conquered Phœnicia, conquered Egypt, pursued the Persian eastward, crushing their forces near the ruins of Nineveh, and thereafter, by swift and amazing thrusts, brought under his sway all the peoples of the Orient between the Euphrates and the Tigris on the west and the Himalayan mountains and the Indus River on the east. The empire which those eastern Indo-Europeans, the Persians, had built by generations of conquest, this Western Indo-European seized by boldness in a few years. For the first time in history a European ruled in the heart of Asia.

Alexander the Great was a mixture of great virtues and great vices. He wrought alike much good and much evil. A brave fighter and a great general, he was by turns gen-

erous and loyal, cruel and faithless. After his years in the East he became more and more the oriental despot, to be approached in abject reverence, even to be worshipped as a god. In organizing Hellas into a vast empire, Alexander unwittingly killed her soul.

But he was keenly appreciative of the great heritage of Greece, and, even while himself sinking deeper and deeper into oriental luxury, labored to spread the civilization in whose name he conquered. He took Greek scientists with him into Asia, and through them sent back to Athens hundreds of specimens of plants and animals for his old tutor, Aristotle. He founded Greek cities bearing his name even on the frontiers of India. From these centres Greek art spread across Asia, to inspire the art of India and to influence the artists of China and Japan. Attic Greek became the language of cultivated men throughout the empire. Greatest of all, the emperor founded in Egypt at the mouth of the Nile the city of Alexandria, to become the repository of all learning and to remain for 300 years the intellectual centre of the ancient world.

It would be difficult to exaggerate the importance of this Hellenization of the entire civilized world in the last centuries before Christ. Historians often speak of Christianity as an Eastern religion, and so it was in that it originated among an Eastern people. But Greek civilization had penetrated far and wide in Asia Minor before the birth of Christ, and the new religion, spreading westward, developed in an atmosphere profoundly Hellenistic.

Some modern historians, impressed by the selfishness and cruelty of Alexander, have sought to belittle him. The general view still upholds the essentials of the myth that has grown around his name. Bold imagination, supreme courage, a far-reaching effect upon the course of human development, seem to justify the title Great. The vicious side of his nature one may perhaps view as inseparable

from such unrestrained egotism. No world-conqueror has ever conquered himself.

Alexander died suddenly in the full flight of his triumphs, of an illness following a drunken debauch. A vast plan of conquest crashed with him. He proposed to turn westward, launch a fleet of a thousand battle-ships, construct a great highway along the northern coast of Africa from Egypt to the Pillars of Hercules, and bring all the peoples of the western Mediterranean under his sway. It was a magnificent if ruthless conception, literally a world-empire. This dream of human unity lived on in men's minds to stir alike conquerors and thinkers, as the vaulting success of Alexander has stirred ambitions in plain men down to modern times.

The emperor had married a Persian princess, Roxana, and a son was born shortly after his death. But no man save Alexander could hold together the vast artificial structure which he had assembled. It fell quickly into three natural divisions, of Europe, Asia, and Africa. Three of Alexander's generals and their descendants ruled them. Seleucus gave his name to the Seleucid empire in Asia, Ptolemy to the Ptolemaic empire in Egypt. The Macedonian empire is memorable chiefly for the fact that its armies met and turned back a new invasion of barbarians from the north, that thrust of the restless Celts or Gauls which reached and made a permanent settlement in Asia Minor. The loosely held empire of the Seleucids inevitably tended to forget its Hellenism and lapse into orientalism. One brilliant exception was the independent kingdom of Pergamum in northwestern Asia Minor. An Eastern Athens grew up here, crowned by a magnificent acropolis rich in sculpture and housing a library rivalling even the marvellous library at Alexandria. There were other centres of Hellenism that remained in Asia Minor to keep the Hellenic tradition alive for centuries after Alexander was dead and forgotten.

It was the Ptolemies in Egypt, and in particular the library and learning of Alexandria, that carried forward the main thrust of Greek culture. Here in this cosmopolitan centre the three great civilizations of the ancient world, representing three races and three continents, the Semitic, the Egyptian, and the Greek, met and fused. The Ptolemies did not attempt to alter the settled government of Egypt. In every outward form of custom and speech this ancient people went their way unchanged. A Macedonian Ptolemy succeeded to the absolute despotism of the Egyptian pharaoh with all the historic machinery for collecting taxes from every dweller in a mud hut on the Nile. Modern Alexandria stands on the site of the original city, concealing all the ancient ruins. A great lighthouse, 370 feet high, looking like a New York skyscraper, rose from the island of Pharos that protected the city's harbor. It was descended from the ancient temple tower of Babylon and, while constructed by Greek architects, showed plainly the oriental influence in its style. Great fleets of war-ships and cargo vessels lay at anchor. A new magnificence rose beyond in the royal parks, the palaces, and the Royal Museum. All that has been swept away, and history remembers as of importance only the great library with its manuscripts and scholars, carrying forward into the Christian era the intellectual progress of the Old World.

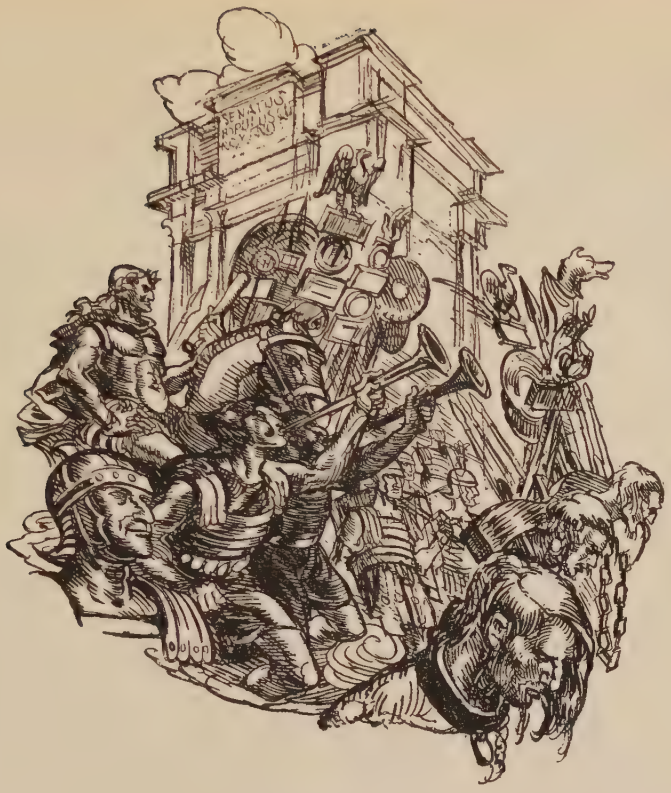
This was 1,500 years and more before the invention of printing, and the Alexandrian library held not books but manuscripts written on long rolls of papyrus. Those were clumsy by comparison with the modern conveniences of a scholar, but they served. Texts of the classics were carefully edited, and Alexandrian editions became the standard of the world—most of modern editions are founded on them.* There were over half a million rolls in the library;

* The library itself was destroyed by a mob during Cæsar's occupation of the city in 47 B. C. Not Alexandrian manuscripts but texts copied from them furnish modern sources.

their catalogue comprised 120 sections. Dictionaries and the first Greek grammar appeared.

Science was the leading interest of Alexandrian minds. An eager search for new facts, new truths, and new inventions was the spirit of these last centuries B. C. Euclid is one of the great names of this era. Archimedes of Syracuse was another great mathematician and a physicist as well. Aristarchus of Samos demonstrated to his own satisfaction that the earth and planets moved around the sun; but this epoch-making discovery was not accepted, and mankind went on believing that the earth was the centre of the solar system for another 1,500 years, till the time of Copernicus. The age was full of extraordinary inventions, automatic door-openers and sprinklers, endless chains for ammunition-hoists, even an automatic theatre. Running water was piped into houses, with many of the conveniences of modern plumbing; and the good old times were mourned much as to-day. The one Greek poet of this age whose work ranks among the classics is Theocritus of Sicily, who wrote idyls about rustic life for the highly civilized cosmopolitans of Alexandria.

Any one considering the intellectual progress of the time must have looked forward to greater and greater discoveries in the near future. In all the sciences men were on the brink of new and marvellous wisdom. It was one of the most exciting and hopeful of eras. Yet nothing came of it. The intellectual growth of the Western world ceased under the rule of Rome and was not revived till the Renaissance and the rise of modern science. What the wise men of Alexandria almost knew in the first century before Christ remained completely hidden for nearly 2,000 years. It is the most extraordinary halt in human progress that is known. One cannot pretend to explain it, but one can at least trace the circumstances that surround it.



CHAPTER XV

ROME

The origins of Italy are not as clearly known as are the origins of Greece. Yet, in a general way, one can be sure that the racial elements were not unlike. There were dark whites, Mediterranean men, like the Cretans, upon the soil from early times. There were invaders from the north, undoubtedly a western branch of those migrating Indo-Europeans who swept down over Greece around 1500 B. C. There were also a mysterious people, the Etruscans, who probably came by sea from the eastern Mediterranean and concerning whose language and origin historians and anthropologists are still debating. In addition, large numbers of Greek invaders settled in Sicily and southern Italy,

forming powerful colonies there; and hard by, in Africa, across a narrow strait, stood the most western of Semitic peoples, the seafaring Carthaginians, rivals, invaders, and ultimately victims of Rome.

The extraordinary fact is that a people so nearly related to the Greeks in racial strains, and settled upon a parallel peninsula thrusting into the same sea, should have developed such marked differences of character and culture. Some of the contributing causes can be pointed out. But the essential problem, of the origin of a national type, the peculiar genius of a people that has been more or less segregated from its fellows, is as unsolved as is the origin of a Shakespeare or a Lincoln among individual men.

The most obvious difference, and possibly the most important, is that the Italian peninsula is farther west, and was thus in the earlier stages of sea communication cut off from contact with oriental civilization. Crete and Egypt were in close communication. Italy and Egypt probably were not. There are as well the facts that Italy possesses few good harbors and is the natural home of farmers who, unlike the Greeks, are not cut off from land travel by encircling hills. Thus the Italians were slow to take to the sea and lacked the early stimulus and adventure of contact with foreigners.

The late Stone Age is plainly recorded in the lake-dwellings of northern Italy. By 2000 B. C. the valley of the Po showed over a hundred of these settlements, similar to those on the lakes of Switzerland. The city of Venice, resting on piles, is their modern descendant. The Indo-European tribes probably filtered south over the Alps from 2000 to 1500 B. C., now driving the native Mediterraneans before them, now mingling with them. Chief of these tribes were the Italic, and from them came the final name of the whole peninsula. They brought with them a branch of the Indo-European language, and Latin was formed much as was

Greek, by the triumph of this new tongue over the native speech. Not long after came the Etruscans, overseas, from nobody knows where, to settle in central Italy, north of the Tiber. Their language, written in Greek characters, has been preserved in inscriptions. Philologists have labored over it for generations without translating a single word. The Etruscans were more civilized than the Italic tribes of barbarians. Their bronzework was of the finest quality, and through their intercourse with the Greeks they learned to make paintings like the decorations on Greek vases. They used the arch in their buildings, and this they probably learned in the East, for the Greeks preferred the flat lintel. They were warlike and cruel, and for a time their cities ruled all central Italy. It seemed as if the future of the peninsula lay in their hands. But the reserve power of the more primitive Italic people would not be denied. As in India, as in Persia, as in Greece, as wherever these northern horsemen and herdsmen faced the south, they and their language ultimately prevailed.

The battle between Etruria and Latium (the most powerful Italic tribe) centred about the border town of Rome on the southern bank of the Tiber, and for several centuries Etruscan kings ruled therein. Around 500 B. C. the Latins drove the Etruscan kings out of Rome and began the slow business of building up a Roman state.

Roughly speaking, Rome endured a thousand years from 500 B. C. to 500 A. D. For the first half it was a republic, and for the second half an empire. If one places the peak of its civilization in the reign of its first emperor—Augustus—it was unquestionably its most splendid period, as the phrase Augustan Age has come to signify. This falls exactly midway, around the year 1. The parallel with Greek chronology, 500 years earlier, is worth noting. The rise and fall of Hellas can be thought of as filling the last 1,000 years B. C. Its Golden Age of culture fell between 500

and 400 B. C., though its greatest material sway did not come till the rise of the empire under Alexander (333 to 323 B. C.).

The growth of Roman power was slow and precarious. In the early years Rome was merely the leader of the Latin league comprising the Italic tribes south of the Tiber. Of its desperate struggles with the Etruscans, one can read in Macaulay's "Lays of Ancient Rome." Luckily for Rome, the Etruscans suffered severely at the hands of two enemies. The Greeks of Syracuse in Sicily destroyed the Etruscan fleet; the Gauls poured down the Alpine passes from the north and sacked their cities. On the other hand, there was resistance to Roman leadership by certain Italic tribes and the Greeks of southern Italy. Also the ever-marauding Gauls swept down to the Tiber and sacked the city. It was on this occasion that, according to tradition, sacred geese cackled in a temple, awakened the Roman garrison, and saved the citadel from capture. The Gauls were finally bought off with a bushel of gold and moved northward, settling in the valley of the Po.

In spite of these obstacles, the little Roman town on the Tiber had by 275 B. C. become the master of all Italy. This was an extraordinary feat, and it was due to a new talent in the world that one can sum up as a gift for organization. Greece had had a common language and a common tradition, a spiritual unity; it had remained split into dozens of city-states and never achieved a governmental unity save such as was imposed by a despot from without. Italy had no common language or traditions. Three different peoples formed its population—the Italic tribes, the Greeks, the Etruscans. Yet so skilful were the Romans in ruling themselves and in ruling their conquests that they succeeded in forming from these diverse elements a single unified and stable state.

One can describe the governmental forms and trace the

steps by which this was accomplished. But the idea must be avoided that any formula of government was responsible. The Greeks knew more of governmental theory than did the Romans, and could rule neither themselves nor others. The unique gift of the Romans was a knack of government, based upon a practical sense of what to do next rather than any fine theory of cause and effect. Right here is suggested the essential difference between the Greek and Roman mind. The Greeks were imaginative and speculative; they freed the human mind and laid the foundations of modern wisdom. The Romans were builders and doers, working out by rule of thumb those practical problems of society which cannot be solved by theory. Upon their foundations of government and law most of the Western world has built its social structure. It is difficult to find a historian who does justice to both Greeks and Romans. They represent two diverse and fundamental types of human beings, and every one is tempted to admire and prefer his own sort. A fair view would recognize that one supplements the other, and that both Greeks and Romans made essential contributions to the civilization of the world—quite as poet and lawmaker, scholar and bridge-builder, are equally essential to-day.

The Roman republic was the name of the nation for the first 500 years. In modern usage a republic is a government in which the people rule through elected representatives, as in the United States. The executive heads of the Roman Government were elected, and to this extent there was a republic in the modern sense. But the idea of elected legislators never appealed to either Greeks or Romans. A republic can either be based on popular elections, in which case it is also a democracy (as to-day in the United States); or it can be based on the votes of the rich and the landowners (as was the case in most of the States of the Union in the early years); or it can be based on the votes of a small

aristocracy of nobles. The Roman republic shifted between these various forms as went the struggle of the nobles, called patricians, against the people, called the plebs. The first elected heads of the state were two consuls elected from the patricians. The people revolted against this oppressive rule and secured the election of the "tribunes of the people." Later they won the right to share in the lawmaking through a huge popular body like the Athenian assembly. The struggle paralleled the struggle in Athens between nobles and people, but the practical Roman mind worked out a far more effective system—and when that became weak, developed yet another. As the Roman state grew, the assembly became more and more unwieldy, and gradually a smaller and more compact body forged to the front. This was the Senate, an ancient body originally composed of elderly patricians. One of the reforms gained by the plebs was to open the ranks of the Senate to plebeians who had held office. A respect for government and its officers lay deep in the Roman mind, and there gradually developed a new type of Senate composed chiefly of the able men who had served as consul, tribune, and in other important posts. Thus a new nobility, recruited from the able and successful men of the people, arose in Rome, and the Senate became for a time an extraordinarily wise and competent body, probably as able as has ever ruled in any state, ancient or modern. All aristocracies probably originate in this fashion and most of them continue to be recruited from the ranks of the lower classes. The trouble is that they do not recruit fast enough to include the real leaders of the people, and they retain too much dead-wood, the degenerate descendants of great men. Thus their level of ability falls and their power with it. It speaks well for the political sense of the Roman people that when they had reformed the Senate they permitted it to take supreme control of the government. Thus in the years of its greatest success the

Roman republic was ruled by a newly recruited aristocracy.

For several centuries Rome ruled the peoples she conquered as ably as she ruled herself. Her treatment of them was generous and intelligent, adjusted to the needs in each case. Often citizenship of a kind was granted; always protection was accorded to the annexed territory. In addition, colonies of Roman farmers were sprinkled far and wide. Thus, despite the handicaps of different languages and peoples, the governmental genius of Rome slowly organized all Italy in a single state, steadily growing in unity and never showing local divisions like the Greek city-states.

The downfall of the Roman republic followed its embarkment upon a policy of overseas conquest. The Senate succeeded in gaining world dominion as had Alexander. The reaction upon Rome was fatal to the old-fashioned state wherein the people had either ruled or acquiesced in the rule of the ablest. The period of republican conquest marched from 264 B. C. to 146 B. C., and in that time the entire Mediterranean world and the bulk of the great Alexandrian Empire surrendered to the armies of the Roman Senate. Thereafter ensued a century of revolution, during which one popular dictator succeeded another, and the republic became but an empty name, and only the advent of a strong imperial rule under Augustus in 30 B. C. saved the Roman state from disintegration and restored peace.

The years of conquest could be passed over lightly were it not for the fact that in them Rome conquered and destroyed Carthage, thereby ending the most brilliant westward thrust of a Semitic people that the world had yet seen. In a military sense the issue hung in the balance for years, and it is interesting to speculate upon the consequences had a Semitic people conquered Italy and thus brought the civilization of the East into the heart of Europe. As it was, the break was complete, and a Semitic people did not penetrate Europe again till the invasion of Spain by the Arabs

a thousand years later. There again the West finally prevailed, but not till Eastern civilization had made a lasting contribution to Europe.*

So complete was the final obliteration of Carthage that it is difficult to reconstruct her civilization. There are no Carthaginian histories. The ruins of the city yield but broken fragments. It is clear that the city was far more magnificent than Rome of this period, her people far more civilized. Her high oriental culture was probably outstripped only by Greece.

Seamen and merchants, like their ancestors, the Phœnicians, the Carthaginians sailed far and wide. They planted colonies in western Sicily and in Spain. They even took control of the Straits of Gibraltar and closed them to all other shipping. By the third century B. C. the Romans were also pushing out to sea as sailors and traders. The business rivalry with the Carthaginians was keen and growing. There was in addition the threat of encirclement by the Carthaginian colonies. Altogether a clash between the two peoples was perhaps inevitable. What it is impossible to excuse in the Romans was the cold-bloodedness with which they attacked a friendly state and the cruelty and ruthlessness with which they completed their task, quitting only when Carthage lay levelled to the earth and a plough was driven across her site.

There were three wars between the two countries—the Punic Wars the Romans called them, which was to say Phœnician Wars. In the first war (264–241 B. C.) the Romans encompassed the feat of creating a navy in a year, building 120 ships, all with five banks of rowers, the latest type of battleship, and training the crews to fight them. They also invented a new boarding-device, a long gangway,

* It is the theory of most modern anthropologists that the Semitic peoples of the Eastern Mediterranean are all to be classified racially with "Mediterranean man." That is to say, they are "dark whites." Culturally, however, the Semitic peoples of historic times have been much more closely akin to East than West.

and, aided thereby, won a great victory over the expert Carthaginian fleet. After years of victories and defeats the Romans gained sufficient advantage to force a peace that gave her Sicily and a large indemnity. More important, Rome had become a sea power, though at terrific cost.

The Second Punic War (219–201 B. C.) centred about the Carthaginian general Hannibal, who invaded Italy and then conducted one of the most brilliant campaigns in military history. He approached from Spain through France, with horsemen and elephants of war, made his way across the Alps, and in a strange land, vastly outnumbered, by sheer military genius won victory after victory. For fifteen years he raided Italy, laying waste her fairest provinces. He was cut off from his base of supplies. His only recruits were Gauls and other enemies of Rome whom he could persuade to his standard. Yet he never lost a battle in the open. It was during these years that a Roman general, Fabius, won immortality by adopting the deliberate policy of running away from battle and thus delaying the issue to weaken the enemy. "Fabian tactics" such a policy is still called to-day. Hannibal was never beaten in Italy. He was forced to retire by the victories of a Roman force in Africa led by Scipio Africanus the Elder. There the final battle was fought, and after a terrific struggle Hannibal's forces were disastrously defeated. Hannibal barely escaped with his life, to become a hunted wanderer in the East. Carthage was crushed by the peace. She agreed to disperse her war-elephants and her battle-fleets, to make war only by leave of Rome and to pay an annual tribute. Despite the marvellous military leadership of Hannibal this greatest of western states had in sixty years been humbled in the dust by Rome.

The facts are a significant comment on the strength and weakness of Rome. She never developed military leadership of the first rank. Her strategy seldom displayed

imagination. She won through the solid fighting ability of the common soldiers, their effective battle organization and the dogged resolution of the Roman people in the face of disaster. The period of the war with Hannibal was, so far as Roman leadership was concerned, a perfect example of "muddling through," to borrow an expression that the modern English apply to their own leaders.

The fifty-five years from the end of the Second Punic War to the end of the Third were crowded with conquest. Having ended Carthage as a rival, the Senate turned its armies eastward to punish Macedonia, who had sided with Hannibal. Victorious there, Roman armies were before long marching in Asia Minor and conquering the heart of the Seleucid Empire. Presently Egypt acknowledged herself a vassal of Rome without resistance. At first in this conquest of the three Hellenistic empires, heirs of Alexander, the Romans freed the Greek cities which they entered, and their policy was one of leadership rather than annexation. But the rivalries of the East made such generous treatment impracticable; it became necessary to reduce Macedonia to a Roman province; and gradually the Senate organized the whole East in provinces, each under the absolute rule of a Roman governor.

In the last brutal war upon Carthage the Roman Senate displayed every ignoble trait. To be sure, the Carthaginian traders had shown surprising success against the Roman merchants even after the disastrous defeat of Hannibal. But there was no sufficient excuse for the cold-blooded Roman decision to exterminate the beautiful city of Carthage and compel its people, sailors and merchants, to live nine miles from the coast. In the final siege Carthage made a desperate resistance; her woman cut off their hair to furnish bow-strings for their soldiers; the slaughter was terrible; and Rome, as usual, conquered. The whole city was levelled to the ground and the population dispersed.

In the same spirit of destructive brutality, Roman armies in the same year (146 B. C.) sacked and burned the famous Greek city of Corinth. One of the finest libraries of the ancient world was there destroyed, an act of vandalism far surpassing any deeds of the barbarian Vandals who, 600 years later, were to capture Rome and give their name to such wreckers of civilization.

In three generations, from grandfather to grandson, Rome had grown from a small state, the ruler of a peninsula, to the mistress of the world. Her citizens, some 300,000 of rude, embattled farmers and a few sailors and traders, had become the richest people the world had yet seen. Americans are familiar enough with sudden gains, as in the period following the discovery of gold in California. Their whole history has been one of rapidly increasing wealth, the first-fruits of an immensely rich and virgin continent. These crowded years of Rome saw an inrush of prosperity beyond anything her citizens had known. The wealth and treasures of the oldest countries of the world poured into Rome as the spoils of war, as tribute, as the "graft" of colonial rulers, and as the profits of Roman traders. The city was transformed. Now for the first time the art and culture of Greece were recognized and appreciated. They had stood for centuries at the door of Rome in southern Italy; Magna Græcia, or Great Greece, the region was called because of its size and importance.* The beauty and luxury of these cities, all their high civilization, had been despised by the earlier Romans, proud of their plain living and the simple virtues. These they had enforced by public officials, called censors, who had the right to enter any man's home and punish extravagance or immorality. The period of the blue-laws in New England offers a faint modern parallel to this strict regulation of Roman morals. All this

* At Pæstum, to the south of Naples, still stands a temple of Poseidon (the Greek Neptune), built around 500 B. C., and one of the noblest Hellenistic monuments that have been preserved.

was changed. Every returned conqueror or governor put up a new and larger house on the Greek plan. Ship-loads of Greek statues, of marble and bronze, were brought back from the East to decorate the houses of these new rich. Comforts like running water and baths quickly followed. At Pompeii was unearthed a whole mosaic floor imported from a Greek house in Alexandria, the Paris of that age. Absurd extravagances appeared. A jar of salt fish from the Black Sea cost seventy-five dollars, and the fact led old Cato, who was sure that this new Rome was headed for destruction, to protest in the Senate, declaring that Rome was the only city in the world where a jar of fish cost more than a yoke of oxen.

A taste for Greek literature naturally followed the arrival of Greek art. There was no early Roman literature. It is a striking indication of the practical, unimaginative nature of the Roman character that her heroic fighting years produced neither an "Iliad" nor even a battle-song. Language was for the writing of laws, and that was all. Now Greek learning became the fashion in Rome, and the first good schools for the boys of Rome were organized under Greek teachers.

Sudden riches are always demoralizing. They were particularly demoralizing in certain of the forms in which they reached Rome. For one thing, the enormous wealth rolling in upon the state from the eastern provinces made taxes unnecessary. One of the primary obligations of citizenship thus ended. For another, they brought more and more slaves, alien captives, to Rome, till the old sturdy self-reliance of the Roman citizen vanished. Independent farmers disappeared, and plantations tilled by slaves took their place. Slaves were an accepted fact in the ancient world, as the case of Greece made clear. But there were many kinds of slavery. It was particularly cruel and terrible in Rome. Desperate revolts of these slaves, many of them Eastern

captives more civilized than their owners, became a standing peril to the state. Beginning in this period, slavery became a huge and demoralizing force in Roman life. For a third form, this era brought gladiatorial contests to Rome. They were a revival of an old Etruscan custom, and it is an interesting speculation that much of the vein of cruelty in Roman life was of Etruscan origin. At any rate, bloody and barbarous spectacles resulted and became more and more popular. Slaves and condemned criminals were made to fight each other. As a further tidbit for the populace, some one had the idea of making these victims fight wild beasts. Professional gladiators appeared on the scene, and this sport of killing human beings became the great popular amusement of Rome. Before such scenes it is not difficult to imagine the frame of mind that murdered Carthage and Corinth.

All this makes a gloomy picture. Nowhere has it been painted blacker than in the Roman moralists of the time. Old Cato (234–149 B. C.) was typical of the older Roman point of view that regarded the new luxury and Greek learning as vicious and damnable. As a result, many modern historians speak of this period as one of Roman degeneracy. It was certainly one of demoralization. But considering that Rome thereafter pulled herself together and ruled the world for 500 years, degeneracy seems a strong word to apply. Perhaps an accurate summary would state that barbaric Rome conquered the world and civilization so swiftly that she lost command of herself—like many other nations and individuals. The old simple virtues of ancient Rome were weakened by civilization, but enough of them remained to hold together a vast empire through many centuries. As for the old simple vices of Rome—cruelty, for instance—they, too, carried over. Rome was Rome before civilization, and remained Rome after.

For many reasons the republic was doomed. Historians

may disagree as to what was the fundamental cause. The failure of the Senate to cope with the difficult problems of the new empire was one immediate cause. The Senate had ceased to contain the ablest and most experienced men of the nation. Like all aristocratic bodies, it had slowly degenerated into an ultraconservative chamber of mediocre ability, bent chiefly on perpetuating its own powers and the rights of the rich and the nobility whom it represented. The struggle of the next hundred years lay between these classes and the new poor of Rome—chiefly farmers who had lost their lands in the wars and who now formed a starving and embittered populace of the capital. Nominally the plebs still ruled the state through their assemblies. But the Senate had long since made the republic an aristocracy in fact.

There arose during this turbulent century of revolution a series of popular heroes: the Gracchi, Marius, and finally Pompey, Cæsar, and Antony. These were tense and stirring years. Great principles clashed as the republic tottered to its end, and they had great protagonists. No other period of ancient history and few of mediæval or modern are so familiar to modern readers. Few have been as filled with color, swift action, sudden tragedy, and all that is meant by the word theatrical. No wonder Shakespeare turned to Cæsar and to Antony and Cleopatra for the raw stuff of plays. It was essentially an age of transition, when currents are confused and the forces of change are stronger than the strongest man. Failure and death were the common lot of the wisest leaders. The whole period was one of destruction, and the only lasting effect upon Europe, the conquest of Gaul, was largely accidental. The century has no importance comparable with the great ages that have produced great art, great inventions, or great institutions. It has interest simply for the great figures in it. In this sketch of peoples, causes, ideas, and institutions, but brief heed can be paid to such an age.

Tiberius Gracchus (163–133 B. C.) was a pure-minded patriot who, though a noble, was so impressed by the people's wrongs that he made himself their political leader and sought to secure them land. His laws were moderate, just, and wise. Before he could put them into effect, he was slain by a mob of senators. A younger brother, Gaius (153–121 B. C.), the second of the Gracchi, met a similar fate.

The fickleness of the Roman populace and its readiness to listen to demagogues made it difficult for reforms to come through elections. In Marius they turned to a rough peasant soldier and intrusted the fortunes of the republic to him as a military leader, with many of the powers of a dictator. The drift of events tended constantly to undermine the rule of the people. Reaction brought in the senatorial party after Marius. There followed Pompey (106–48 B. C.), another general of the people, who turned eastward and took Roman legions to the Caspian and the Euphrates, making Syria a Roman province and crushing the last remnants of the Seleucid Empire. He returned to Rome a popular idol, and the city was thrilled once more by the splendor of the ancient East, now its subject and slave. There was renewed within the Roman state that conflict of East and West which began at Salamis and which was not to end till the Roman Empire was split in half and the two great civilizations of the world, basically different in race and culture and character and united in part and for periods only by the chains of conquest, resumed their separate paths for the rest of history.

There was rising to power in Rome while Pompey was fighting in the East the greatest of all Rome's popular leaders and one of the strong men of all time—Julius Cæsar (102–44 B. C.). He has been both overpraised and underrated. He was not a great statesman who saw far into the future and labored unselfishly to reconstruct the govern-

ment of Rome upon a secure basis. The times fought against such wisdom. He was a politician and, where necessary, a demagogue—no leader could live or succeed in Rome without catering to the whims and fancies of the Roman populace. He did perceive the fundamental truth that popular rule equally with senatorial rule had failed, and that the rule of a few strong men or of one strong man must be substituted for it.

He began with an informal triumvirate—a secret rule of three men—forming a private alliance with the newly returned Pompey. As consul he passed land laws for the people. He still lacked that glamour of popularity which Pompey as a great conqueror possessed. Also he lacked an army, without which no leader, however strong, could hope to subdue the turbulent factions of Rome. To these personal needs was chiefly due that conquest of Gaul by Cæsar which is still the best-known and most studied episode in Roman history. Pompey had gone east and found glory; Cæsar had the imagination to see that a great opportunity lay west of the Rhône under the setting sun. The thrall of the East, its luxury, its beauty, its older culture, was to grip Cæsar, almost to his undoing, later in his life. It was accident and personal necessity that sent him westward, not preference or an appreciation of consequences. The irony of all human history lies in the fact that thus fighting in behalf of his own ambitions Cæsar made his one lasting impression upon the course of European history. He opened the westward door that made possible the development of that Western civilization which is modern Europe and the Americas.

Cæsar's conquest of Gaul took from 58 to 50 B. C. Those who read his own story of it in "De Bello Gallico" carry away an impression of machine-like efficiency mowing down one barbarian enemy after another. The efficiency was there; Cæsar's keen military mind saw from

the start that organization of supplies and transport was his great superiority, and, relying upon it, moved hither and yon, striking swiftly and unexpectedly. But the whole venture was far more desperate than the calm, lucid Latin of Cæsar's "Commentaries" would lead one to suppose. A Kipling would have made these hazardous attacks and stubborn defenses of a far-flung battle-line fighting barbarians in their homeland a thrilling picture. Cæsar, in fact, wrote his book as a political pamphlet, for its effect upon the Roman people, and successful conquest was its main theme. For political reasons he announced the conquest of Gaul as completed after two years of fighting, and the province was formally annexed amid great enthusiasm at Rome. But revolt after revolt flared up. Cæsar found himself at the end with a force of 30,000 facing an army of 250,000. The division of the enemy, the confusion of counsel among the different tribes of Gauls, gave him his final victory.

Thus Roman civilization, its blood, its roads, its monuments, its language, its laws, began slowly to penetrate that whole region west of the Rhine which to-day is France and Belgium. It even left lasting effects in Britain, which Cæsar invaded without conquering.

Meantime, his old ally, Pompey, never a strong character, now rich and spoiled by success, had gone over to the Senate and secured election as sole consul, a virtual dictatorship. Cæsar found himself, his conquest of Gaul completed, threatened with political eclipse. He tried every means to avert civil war. When all else failed, he marched on Rome with his legions. He violated the frontier of the republic when he crossed the Rubicon, a little stream that marked the boundary of his province. Thereat the die was cast and he struck with his usual swiftness. He drove Pompey out of Italy and made himself master of Rome. Pursuing Pompey to Thessaly, he there defeated him in the most brilliant battle of his career. Pompey fled to Alex-

andria and there was assassinated. Cæsar, following, fell a victim to the charms of Cleopatra, queen of Egypt, and, as events proved, the last of the Ptolemies. For eight months he halted his conquests to be with Cleopatra. Part of the time he was besieged in the palace by Egyptian troops in revolt. By a tragic fatality the rioting fired and totally destroyed the famous Alexandrian Library, one of the greatest losses that has befallen mankind. Artists and writers have speculated much about Cleopatra. Her features on coins of the time are not beautiful. To a Roman general who had passed eight years upon barbarous campaigns she must have summed up all the East—its culture, its luxury, its mystery—and the episode is not overstressed if it is taken as symbolizing that cleavage between East and West, the fascination of the one for the other, and the disaster that sooner or later attended their diverse union.

From Asia Minor Cæsar sent his famous message to the Senate: *Veni, vidi, vici* ("I came, I saw, I conquered"). Africa, too, he reduced to subjection, and Spain as well. Returning to Rome, he had himself made Dictator for life, a dangerous step, for it involved an outward break with republican tradition. Amid the forms of the republic he was in effect the first emperor of Rome. As such he showed himself a just and efficient man. Vast plans for buildings, for roads, for the conquest of the Parthians and the Germans, flowed from his brain. He introduced the Egyptian calendar into Europe, which we still use. It is interesting to speculate on the course of Europe had he lived, for Germany would conceivably have become a Roman province like Gaul, and Roman language and civilization would have spread over the bulk of Europe.

He lived only five years from his crossing of the Rubicon. A group of fanatical republicans, blind to the fact that the republic had long since perished beyond revival, struck down Cæsar with their daggers. One of them,

Brutus, student and idealist, was a close friend of Cæsar's. So ended the greatest soldier and man of action that Rome produced. His clearness of mind, his tireless energy, his ability to concentrate his faculties upon a given task would have made him great in any age.

The ancient republic of which the conspirators dreamed never returned to Rome. Two men fought to rule the empire. One was Marc Antony, one of Cæsar's closest friends. The other was a youth of twenty, Octavian (63 B. C.–14 A. D.), Cæsar's grandnephew and adopted heir. Antony was none too able, and before long had retired to Alexandria, where he married Cleopatra and sought to recoup his political fortunes while living amid the splendor of an Eastern potentate. Octavian showed courage and a clear head. He defeated Antony by sea and entered Egypt, annexing it to Rome. Antony and Cleopatra died by their own hands. So ended the reign of the Ptolemies that had lasted nearly 300 years from the death of Alexander the Great. So ended, too, the century of civil war that had drenched Italy in blood and destroyed the republic, and began the 500 years of the Roman Empire (30 B. C.).

Octavian lacked the genius of Cæsar, but, possessing tact and a level head, he succeeded in establishing a secure rule where Cæsar had failed. The Roman Empire is always dated from the triumph of Octavian. He did not, however, set up an empire by name. He perpetuated the forms of the republic, as had Cæsar, and paid them a respect which Cæsar had neither felt nor shown. He assumed no such title as Dictator, which led to the undoing of Cæsar. The title Augustus was conferred on him, and it is under that name that he is commonly referred to. Imperator, also, he was called, from which the modern emperor comes; but it had no such far-flung meaning then.

Security and peace after bloodshed were the chief blessings that Augustus brought to Rome. He carried out

many of the building plans which Cæsar had made; in his own words, he found Rome a city of brick and left it a city of marble. The grandeur which still stands in the ruins of the Forum took its origin from the reign of Augustus. The round arch of the Orient was combined with Greek forms in a simple and stately magnificence. The arch of triumph was a Roman creation. Long aqueducts carried on lofty springing arches testified to the great ability of the Romans in construction. But they had no such varied artistic genius as had the Greeks; their sculpture showed little originality. Greek literature became a passion with educated Romans in the last year of the republic. Cæsar and men like him spoke Greek to one another as much as they did Latin. There have seldom been men more cultivated in literature than these students and patrons of the arts of the Augustan Age. But in the creation of literature Rome was singularly unfruitful. Four writers, truly original and great, belong in the last century of the republic: Lucretius, Catullus, Cicero, and Cæsar. However dry the "Gallic War" may seem as a text-book, it is a masterpiece of clear, swift statement, typically Roman in its bare practical use of language. Cicero (106–43 B. C.), who alone ranks with Demosthenes among the ancient orators, was a steadfast, upright character in Roman politics through the darkest days of civil war. He developed to perfection that sonorous swing of Latin prose which, with its tense brevity of construction and consequent clarity, made its greatness as a speech. Lucretius (*c.* 98–55 B. C.) was the greatest mind of the three and a figure unique in Roman culture. He possessed the same sort of towering imagination, all-searching curiosity, and rich artistic feeling that later reappeared in the Renaissance in Leonardo da Vinci, another Italian. His great work was a long poem, "De Rerum Natura" ("On the Nature of Things"), a scientific epic, a universal history, in verse, wherein he made

extraordinarily brilliant guesses, following Democritus, the Greek philosopher, as to early man and nature—foreshadowed, indeed, the modern conception of evolution. The lyrics of Catullus rank with the great Elizabethan songs in the English tongue, as moving as they are exquisite.

Science lay hopelessly dead in Rome, crushed out by the practical genius of her people. The geometry of Euclid was taught, but only to learn the propositions by rote—the reasoning on which they were based was ignored as having neither value nor interest. Mathematics became a useful aid in construction; it ceased to be a science at the very moment when Alexandrian scholars were on the brink of brilliant discoveries. The same held true of medicine, astronomy, biology, and the other sciences in which Greek genius had so brilliantly lighted the way. The curtain fell upon science in the Western world, not to rise again till modern times. There is no other halt and failure of the human mind so extraordinary.

In the Golden Age of Augustus belong two writers typical of such a period of high culture and devotion to the literature of the past—Horace (65–8 B. C.) and Vergil (70–19 B. C.). The former, a wit and polished poet, wrote odes and satires that give an undying picture of the times. The son of a freedman, of unknown race, he was supported by a rich friend of the arts, Mæcenas, whose name has become proverbial for a bountiful patron. Vergil wrote his "Æneid" to be the Roman "Iliad" and "Odyssey" combined, tracing the adventures of mythical ancestors of Augustus back to the Trojan War. It is beautiful verse, the perfect example of an epic produced in a highly critical and sophisticated age. The contrast with the older epic, handing down traditions by word of mouth, is great. The supremacy of Homer cannot be challenged by this achievement, fine as it is.

The four emperors that followed Augustus were a mixed

lot. A tyrant, a madman, a fool, and a monster they have been rated on the somewhat prejudiced authority of the Roman historian Tacitus. The monster was Nero. The story of his fiddling while Rome burned has found no confirmation among modern investigators, but enough is left of his vices and crimes to confirm the essential truth of the myth. He did play the lyre in public competitions and sang in the theatre. Among his crimes, he conspired to have his mother drowned at sea; and when that attack failed, ordered her stabbed to death. As for the burning of Rome, it is true that the rumor spread that Nero had prepared the torch; but modern historians dismiss that report as unfounded. More interesting is the fact that an official investigation fastened the blame on a new religious sect, but just come out of Palestine, and then gaining strength in Rome—the Christians. As a result of this false charge many Christians were put to death in the first persecution of that faith. This was in 64 A. D.

The second century witnessed the height of Roman power and organization. The first Flavian emperor, Vespasian, a skilful organizer, had already set Rome on the upward path. Two great soldiers, Trajan and Hadrian, both colonials from the province of Spain, ruled in these happiest years. Hadrian, especially, brought to completion the organization of the empire under honest and efficient governors and a great imperial code of laws, humane and just. A vast empire, with a new unity, was the Roman state of this era. Roman architecture, the Roman tongue, Roman law, spread their civilizing force throughout Gaul and Spain, even into England. Roman baths have been unearthed in Bath, England. The ruins of a Roman amphitheatre still stand amid the huts of a North African village. Eastward through Syria to the Euphrates and the Tigris stretch the remains of aqueducts and theatres that Roman genius erected in these towering days of her power.

There, however, civilization was old beyond the memory of man. More striking was the spread of civilization westward through what is now Spain, Portugal, France, Belgium, and England. Here was the creation of a new empire that left Rome no longer the western outpost of civilization but the centre of a vast Mediterranean world stretching from the Tigris to the Thames.

In all this extraordinary development of an organized unity Roman law played the central part. It can fairly be regarded as the great contribution of Rome to mediæval and modern times. Both specific rules of law and theories of law entered into the law of the Christian Church and the Holy Roman Empire, and find their descendants in the law of to-day. A new regard for law, expressing a deeper realization of the service which such public rules of action can render to a community and a nation, matured in the Roman mind and has deeply affected European progress ever since.

A sharp distinction must be made as to the example of Rome in the field of governmental organization. So many words, like republic and senate, come from Rome that there is danger of thinking that the institutions are also derived from corresponding facts in Rome. No such real resemblance exists. The essential device in a modern republic, the representative system by which voters elect legislators to act for them in the government, was unknown to Rome. It was not invented till many centuries later—in recent times. But the Roman republic did set up a new conception of the state, or, rather, a conception born in the Greek mind and applied in Rome. It contrasted sharply with the oriental view, which looked upon an empire as the personal property of its ruler. Republic comes from the two Latin words *res* and *publica,* and it expressed the clear idea that the Roman state belonged to the people of Rome and not to any potentate. This was the ancient ideal working in the

minds of Brutus and the other assassins of Cæsar. Down through the first two centuries of the empire it still lived with varying force. No dynasty was established. Each emperor was formally elected by the Senate, though more and more that body became the tool of the army.

The last of the great emperors of the old republican empire was Marcus Aurelius (121–180). In his pure and noble life, his devotion to the state, and his scholarly love of philosophy, he harked back to the finest traditions of Rome. His "Meditations," thoughts jotted down in the midst of camp and court, are the purest expression of that Stoic philosophy which was typical of the best of Rome and which has profoundly stirred men's hearts to this day. When he died, a great tradition died with him.

Thereafter the decline of Rome was constant. Even before the reign of Marcus Aurelius the Teutonic barbarians to the north of the Danube and the east of the Rhine had become a grave menace. In the east, beyond the Euphrates and Tigris, the Parthians, descendants of the ancient Persians, had long fought an equal battle with the Roman legions. In the third century a new dynasty, the Sassanids, brought new vigor to the old Persian nation and to the religion of Zoroaster. North and east the empire was beset; and within, the old cleavage between East and West reasserted itself more and more strongly. The republic disappeared forever and the emperors became despots, ruling in the oriental fashion. The empire was divided into two empires, the east and the west, and the Eastern influence came to the fore. Finally, in 324 Constantine (reign: 306–337) abandoned Rome and built a new capital upon the site of the old Greek town Byzantium on the northern side of the Bosporus. Constantinople it was named; which is to say, Constantine's city, after the style of Alexandria. From this eastern window of Europe, looking out upon Asia, the last years of Rome were ruled. Constantine was

the first emperor to embrace Christianity, and herewith entered upon the world scene a new force and a new institution. The end of Rome came in 476, when a Teutonic ruler displaced the last Roman emperor. Already, however, the organization of the Christian Church had spread far and wide and greatly affected the course of the barbarian invasions and all that followed. Before setting down the story of these invasions, this second coming of the North that overran the Roman Empire, it will be necessary to go back and trace the origins of this new religion that came out of the Orient to conquer Europe.

CHAPTER XVI

THE DARK AGES OF EUROPE

I. THE RISE OF THE CHRISTIAN CHURCH

WHETHER one is a Christian or not, one cannot question the capital importance to the Western world of the life and death of Christ. Western chronology marks the birth of Christ by a complete break in the calendar. The device does not overestimate the significance of the date in history. Therefrom developed a faith and an institution which have profoundly affected the character and the history of all Western civilization for over fifteen hundred years, and are still alive and powerful.

The background against which Christ was born in Judea has already been suggested. This small and tenacious people of the Semitic race had the misfortune on leaving the Arabian Desert to make their home on a battle-ground of

Europe and Asia. Armageddon, the scene of so many great battles that it has become the symbolic name of all great wars, is a hill in Israel. The Jews were captives in Egypt and captives in Babylon. The nation was conquered by Assyria, by Chaldea, by Persia, by Greece, by Rome. Jerusalem was destroyed again and again. Yet, inspired by their mighty prophets, the Jews held stanchly to their faith in Jehovah, their one God, and in their ultimate rise to power under a great leader, or Messiah. Victory never came to them as a nation. Instead, they gradually spread to the cities of other nations, taking their religion with them. Alexandria was the largest Jewish city of its time, much as New York is to-day. As already set down, the most adventurous branch of the Semitic race, the Carthaginians, Phœnicians overseas, met an equal disaster and dispersion at the hands of the Romans. The third great Semitic people, the Arabs, had remained in their desert home and along its fertile border. Not till the eighth century A. D. were they, under the spur of a new religion, to make their bold thrust westward that was also to end in defeat, though leaving a lasting mark upon Spain.

It was in this small land of outward failure and captivity, of inward hope and faith, that the Christian religion was born. The Semitic tongue, Aramaic, was the speech of Palestine, and was the speech of Christ and his disciples. A Roman governor ruled the land in the name of Augustus. Greek influence was on all sides. Much of Semitic Syria, to the north of Palestine, spoke Greek. To the south was Alexandria, a Greek creation. In Jerusalem itself, the sacred city of Judea, wearing the temple as its crown, was a confusion of tongues and races. It is thought that the gospels were originally set down in Aramaic; but it is a striking fact that these precious, original sources of Christian faith, written but a few decades after the death of Christ, have come down to us only in the Greek tongue.

Nor was the eastward progress of the new faith a marked success. Its first followers were Jews, and it made groups of converts at the eastern end of the Mediterranean. The main thrust of the religion was westward, and its development into a creed and organization was made largely under Greek and Roman influence. Even Paul of Tarsus, its first great leader and interpreter, spoke and wrote in Greek. It is difficult to separate Eastern and Western elements in the Christian religion. It is perhaps fair to say that the first great inspiration came wholly from the East, the development thereof into a church and a creed mostly from the West.

The elaborate rites in which the Christian Church soon clothed the brief and simple words of Christ were drawn from the immemorial expressions of religious faith. Without them the faith of Christ would have disappeared swiftly, the record of personal beliefs suggests. Sacrifice, for example, is as familiar to the Arunta Indians of Australia as it was to the high priests of Israel or the Greeks or Romans. It was natural and inevitable that the early Christians should see in the Crucifixion a sacrifice to be celebrated in the ritual of the Last Supper, or Mass. Each new religion builds on these devotions of the past, fusing the old in the new. Easter is the successor of an old pagan festival. Sunday comes probably from the old worship of Zoroaster, popular at that time in a cult called Mithraism. The other great rival of Christianity was the Egyptian worship of Isis and the other gods and goddesses of the Nile. Greece and Rome produced philosophers and philosophy, be it noted, but neither people originated religious ideas beyond the primitive array of gods and goddesses personifying the forces of nature.

Likewise the growth of Christian dogma followed the normal tendency of human minds to apply, interpret, and define a new faith. Had Christ been born in China the re-

ligion growing out of his life and passion would surely have been different from what it was in this Mediterranean civilization. Greek philosophy, for example, inevitably played a considerable part in this process. So did Roman organization, securing a unity of the empire unknown in government before.

The Christian faith spread swiftly. Within a hundred years from the Crucifixion its small groups meeting in secret had grown so strong that they attracted the fears and suspicions of the Roman authorities. They were cruelly persecuted under several Roman emperors. Yet the policy of the empire was in general liberal toward all religious faiths, and these persecutions are held by many historians to have been less frequent than supposed. The Roman attitude was certainly more tolerant than that ofttimes assumed by the later Christian Church when it came to power. Deacons, presbyters (elders), and bishops were the earlier officers of the faith, and it seems clear that under the inspiration of Roman example a well-organized church was not slow in developing. Thus when the great Emperor Constantine was suddenly converted to Christianity and established it as the legal religion of Rome, there was a fully developed church extending far and wide through the empire, ready to step forward and match the empire in unity. In fact, the Christian Church possessed a strength and held a loyalty that the declining empire fatally lacked. The fact was an important consideration leading to Constantine's decision.

One of the early acts of Constantine was to call the first general council of the Church. This was in 325 A. D., and the gathering of bishops assembled at Nicæa, across the Bosporus from Constantinople. Already bitter doctrinal controversies had arisen in the Church. The council decided them and stated the faith of the Church in a creed similar to what has since been called the Nicene or

Athanasian Creed. The great Arian controversy was the principal issue: Was Christ of one substance with God and coeternal with Him or not? Arius held no, Athanasius held yes. The council sided with Athanasius, and that view of this central question has remained the faith of the Christian Church, Roman, Greek, and Protestant (with minor exceptions), down to our time. Thus through Constantine's leadership dissension was ended for the time and the Church united behind a definite creed. Here was clearly the Roman influence acting to organize the Church.*

A contrary influence, splitting the Church in half, was the definite and final splitting of the empire which followed the death of Constantine. This result came after years of growing divergence between the Greek and Roman halves of the empire. The forces of the East had always been strong east of the Adriatic. Now they led to a final cleavage. The same influences made inevitable the separation of the Eastern and Western Churches. The break actually came over doctrinal differences, some exceedingly minute. The two churches, still called the Greek and the Roman, remain thus separated to this day.

As might be expected, the Greek Church developed a looser organization and a more active doctrinal debate. The Greek fondness for philosophical discussion would not down. The Western Church held more closely to the model of the empire. Above all, it developed a headship in the bishop of Rome which was of far-reaching moment. The Church in Rome was one of the earliest, as Paul's epistles record. St. Paul visited it, may have suffered martyrdom

* There were many other doctrinal disputes and heretical faiths in these centuries. The Gnostics were mystics of many sects and confused pagan beliefs. Mithraism was a branch of Zoroastrianism that entered Europe before the birth of Christ, attained great popularity, and was a serious rival of Christianity. Its successor, Manichæism, originated in the third century A. D. in Persia and was largely based on Zoroastrianism but attempted to reconcile that faith with Christianity. It especially stressed the conflict between light and darkness, good and evil. Its dualistic philosophy lived on for centuries in Europe and in the Middle Ages inspired the heresy of the Albigensians in Southern France which resulted in their persecution.

there in the days of Nero. According to church tradition —which history can neither confirm nor deny—it was founded by the Apostle Peter, to whom Christ said: "Upon this rock I will build my church." By the fourth century the power of the Roman bishop was increasingly recognized in the Church, and an imperial decree made him appellate judge over all other bishops. The Western, or Roman, Church had developed the framework of a government destined to become as unified and efficient as that of the empire in its proudest days. The Roman papacy, the oldest line of rulers in the world, began its triumphant course.

2. THE SECOND COMING OF THE NORTH

A mingling of the ancient Mediterranean race and its high civilization with hardy barbarians from the North produced the greatness of Greece and Rome. It was from 2000 to 1500 B. C. that these first invasions took place. Now again, after 2,000 years, the North was on the march, and just as the invasions in the case of Greece caused a period of turmoil, during which the Minoan civilization of Crete and the mainland was submerged, so the Roman Empire in Europe was overrun after its downfall.

The Dark Ages has been the common name for this period, and it seems worth preserving. Modern historians have given a fairer picture of the period, and its darkness has been shown to be lit by much learning and virtue. The first section of this chapter, tracing the rise of Christianity, points to the brightest of these beams. The contrast with what came before and what came after is, however, as striking as the old name suggests. The period is to be thought of as part of the Middle Ages, a name signifying simply the centuries between the collapse of the ancient world and the rise of the modern. The early Middle Ages some historians have called them.

If the fall of Rome is put at 476 A. D., the death of

Charlemagne in 814 A. D. is sometimes used to mark the end of the Dark Ages. Yet the coming of the barbarians was a slow process active long before 476; and the ninth and tenth centuries were little better than the eighth. History cannot be fenced off by such dates. At the best they point to events around which slow human processes and tendencies centred. The barbarian darkness can roughly be thought of as thickest over western Europe from 400 to 1000 A. D.

These new barbarians were another wave of the same stock which, from about 2000 B. C., carried the Indo-European tongue to Persia and India, to Greece and to Rome, to Gaul and to Britain. All spoke some division of the Teutonic branch of the Indo-European tongue. If you will look at a map of Europe you will see that the River Danube and the River Rhine rise not far apart in the Black Forest north of Switzerland. North of the Danube and east of the Rhine these Teutonic tribes had dwelt throughout the flowering of Greek and Roman civilization, untouched by their example. They were blonder even than the Celts of Gaul, taller and fiercer warriors. In 400 A. D. they were still hunters and fighters with but the beginnings of farming. Central Europe, their home, was still a vast forest, uncleared and uncultivated. Backed by a passage in Tacitus, northern historians for long tended to exaggerate the virtues and institutions of these particular barbarians. The theory of Nordic supremacy in the world to-day starts from this assumption. Most modern historians do not share this enthusiasm. The Teutonic tribes were magnificent, upstanding barbarians, great fighters and great drinkers. They were splendid raw material for civilization and they contributed a most valuable strain of blood to all the present-day nations of western Europe. But they brought little in the way of government or social order or any item of civilized society.

Aside from their infusion of vigorous blood, the main service of the Teutonic barbarians was one of destruction. For they did not attack and defeat the empire in its ancient state of power and usefulness. It had long been declining. It was ready for dissolution. Its proud unity of law, based on general principles of justice, had been lost. The new provincials felt little of the old loyalty to the state that had made the Romans of the republic and the early empire invincible. Countless causes for the decline of Rome have been suggested, ranging from decadent morals to mosquitoes and malaria. A choice between these guesses is impossible. The springs of human actions are too complex and as yet too little understood to be accurately analyzed to their sources. It is safer to study and observe symptoms than to attempt a diagnosis upon insufficient knowledge. One obvious and important fact was that Rome had overextended herself, had sought to assimilate more alien peoples than her native population and institutions could digest. More than half of her armies were barbarians. The whole aspect of the Western empire by 400 A. D. was semibarbarian. Only after the destruction of these falling walls could a new order of state arise.

The causes of the migrations were probably threefold. The Teutonic tribes were pushed from behind by the pressure of the Asiatic Huns to the east; they were pushed from within by increase of population; they were tempted ahead by the fertile farms of the Gauls and Romans. They were precisely at that point in development when the hard lesson of agriculture must be learned. A little casual farming on the edge of a forest or along a river-bottom is one thing. Clearing land of a forest, tilling and fertilizing from year to year the same plot, is quite another. The Teutonic tribes, living in patriarchal villages of a hundred or more families, sheltered by huts, clad in skins, assembling for battle under a more or less temporary king, were midway

in the lesson. Their general civilization has been compared to that of the American Indians at the discovery of America. By conquering their more civilized neighbors to the west and south, they could step into farms ready for use.

The details of the turmoil are of far less importance than the results, the final homes of the different tribes and the structure built thereon. For in these centuries modern Europe was laid down so far as its human elements were concerned. No considerable infusion of blood—save in Spain and Portugal—and no great migrations took place thereafter.

Roughly speaking, the movement started in the east and spread westward. The first to march were the Goths dwelling west of the Black Sea and north of the Danube. Among the last were the Franks east of the lower Rhine; in fact, the Franks never did migrate as a people, their progress westward being a slow conquest and absorption that left them the masters of northwestern Europe. The tradition of the Goths pictured them as coming originally from Sweden and Norway. If this is true, it is a striking example of the fusion of North and South produced by these migrations; for these northernmost blonds settled finally in Italy and in Spain, bringing a great infusion of what would now be called Nordic blood by some historians into these southernmost peninsulas of Europe.

There were two branches of Goths: the Visigoths, or West Goths, and the Ostrogoths, or East Goths. The Visigoths were the more active and warlike and the first to move. Under a great general and leader, Alaric (370–410), they made the first successful northern attack upon Rome. This magnificent fighting barbarian was confronted by a weakling emperor named Honorius, who dallied in Ravenna when his imperial city was threatened. Rome fell before Alaric's siege and battering hosts in 410, and tradition tells a tale of how Honorius received the tidings. An

officer rushed in and cried that Rome had perished. "What!" cried the emperor; "she was feeding from my hand an hour ago"; and was greatly relieved when it was explained that it was not his pet hen "Roma" but the capital of his empire that was lost. True or false, the anecdote, like most myths, gives a significant picture of the degenerate shoulders upon which the mantle of the Cæsars had fallen. It should be added, in view of loose conceptions as to these barbarians, that the Visigoths, while they took money and precious movables, did not destroy Rome or greatly injure it. Alaric expressely commanded his men to respect the churches. These chestnut-haired hunters from the North had more respect for the greatness of Rome than had its own rulers. Thereafter the Visigoths left Italy and turned westward, conquering what is now southwestern France and almost all of modern Spain. Thus the territory north and south of the Pyrenees was for a while united in a Visigothic kingdom, and the same breed of blond northerner fused with the older Mediterranean peoples in both regions.

Next to march were the Vandals, another Teutonic tribe, dwelling to the westward of the Goths on the shores of the Baltic Sea. These rovers and marauders circled western Europe and traversed Spain before they finally came to rest in northwestern Africa, long famous as a granary of Rome. From the Straits of Gibraltar to Carthage they established a kingdom and, taking to the sea, became the most dreaded pirates of the Mediterranean. They, too, in 455, took and plundered Rome. Yet neither here nor generally in their piratical marauding did the Vandals wantonly destroy monuments and buildings in a fashion to justify the modern use of the word "vandalism" for such purposeless acts. On the other hand, the Vandals left little enduring influence upon history; for the climate of the south conquered them where Rome had failed. They were one of the first north-

ern people in history to migrate so far south as to lose their northern traits and be swallowed up in the native blood.

The Burgundians, close neighbors of the Vandals on the Baltic, moved but a short distance to the south, settling in the region of the Rhône. In these rich and fertile valleys, of what is now southeastern France, these invaders speedily became Christianized and Romanized, and leaders in the new civilization that was to grow out of this crossing of the older races of the Roman Empire with these new and vigorous barbarians.

Farther on to the north and west were the Franks. These Teutonic tribes never packed up and marched off as did the Vandals and the Goths. They stayed at home and waxed in power by slowly annexing surrounding soil and peoples. The lower Rhine region, from Cologne to the sea, saw their beginning. They grew into the greatest of the Teutonic kingdoms, masters of all northwestern Europe. They were the most important factor in the creation of the new civilization that was to grow amid the ruins of the old. Of all these barbarians they were for a while the most cruel and bloodthirsty, and because of their development on their homeland they retained their old laws and customs over a long period of transition.

About the same time that the Franks spread westward, the Angles, Jutes, and Saxons, three tribes living somewhat to the east of the Franks, at the base of the Danish peninsula, began to land on the east coast of Britain. They came in larger and larger numbers, finally conquering all England. Some of them were seafaring folk, forerunners of the Vikings who a few centuries later were to harry and plunder and conquer far and wide. Since Britain had felt but distantly the civilization of Rome, and since these Teutonic conquerors had been wholly untouched by it, the rise of civilization in Britain was slow, lagging behind even the barbarian Franks across the Channel.

Yet even here it is easy to exaggerate the importance of this last deposit of peoples upon western European soil. Their numbers were never great. They entered a region already well peopled by a race in touch with the high civilization of Rome. The invaders were generally in a minority, it is probable. The civilization that flowered after the dark centuries of migration and turmoil was built on the old, and the people that resulted were a fusion of the old and the new.

A later migration brought another strain of blond barbarians into northern Italy, the Lombards, who marched from the region of the Danube in the sixth century and settled in the valley of the Po. They conquered with great cruelty and were cordially hated by the Italic peoples. Lombardy is still the name of this region.

Nothing less than the whole basis of modern Europe was laid down in this last great shuffling of peoples. The hands were being dealt with which the game of Europe was to be finally played.

There are suggestive pictures of these centuries of turmoil in the epics that have come down from them, called sagas in the Teutonic languages. The parallel with the "Iliad" and the "Odyssey" is complete; the age was in the same sense an age of barbarian heroes impinging upon an older civilization; if the poetry was not as great, that was because these northern and western Europeans lacked the supreme artistic gift of the Greeks.

In Burgundy grew up the "Nibelungenlied," a set of folk-tales combining mythical gods and goddesses with real heroes and heroines, as yet vaguely identified. The final versions—upon which Richard Wagner based his operas of the Ring series—were not written down till many centuries later. Originally they were recited by bards at the feasts of kings and nobles, precisely as were the poems of Homer. The Franks left no epics. "Beowulf" is the saga of the An-

gles. The familiar legends of King Arthur and the Round Table are probably based on old Welsh epics. In the form in which they have come down to us, however, the earlier elements are overlaid with romantic and chivalrous ideas belonging not to the barbaric age of the seventh century in which King Arthur is supposed to have lived, but to the Middle Ages, in which these versions were composed. The Irish sagas, though not written down till mediæval times, tell of cattle raids and savage splendor clearly belonging to earlier centuries. The Icelandic sagas, or eddas, contain much of the "Nibelungenlied," showing how wide-spread were these ancient myths. They are among the most beautiful of the Teutonic epics.

The weakness of these later Indo-European poems, as compared with the "Iliad" and "Odyssey," is a lack of construction; they are vivid and glowing in language but they lack orderly development, proportion, and unity of design. The earlier Northmen, descending upon the Mediterranean 2,000 years before, fused with a people of keen artistic sense, and the epics then born attained a beauty never equalled before or since. Yet the state of barbarian splendor described—the heroic champions fighting and drinking, the mingling of history and mythology, the loves and hates, the vengeances and terrors—suggests a similar era. In many respects these Dark Ages of western Europe, from 400 to 1000 A. D., were much like the Dark Ages around the Ægean from 1500 to 1000 B. C. For a time, save in isolated spots, the second coming of the North set back civilization in western Europe some 2,000 years. What had been gained was not lost, however. The continuity of Western civilization was never wholly severed. The seeds of Greece and Rome and Christianity still lived on beneath the barbarian deposit, and were destined before many centuries to thrust themselves aloft to flower with renewed vigor in mediæval and modern times.

3. TWO THRUSTS FROM THE EAST

The influences of Asia upon Europe have already been many. All European civilization took its rise near that crossroads of three continents at the eastern end of the Mediterranean around which clustered Mesopotamia, Egypt, Crete. Christianity, to become the most powerful single influence upon the Western world, originated in Asia. In this sense the contributions of the East to the West have been many and great and will continue.

So also have the efforts at colonization and conquest by the East already been important. They were two: Persia and Carthage, of which the former was allied by blood with one element in the racial mixture of Europe. Two more arrive now, one by the Huns in the fifth century, and one by the Arabs in the eighth. The former left few traces of blood or culture; the latter permanently affected the Spanish race and the civilization of Europe.

To complete this summary of Eastern invasion, one later thrust came from the Tatars under Genghis Khan in the twelfth century, a people related to the Huns. They were defeated in western Europe, like all the previous thrusts, but they left upon eastern Europe a great deposit of Asiatic colonists. They succeeded in making Russia to some extent Asiatic. Also, as an incident, the Turk came to Asia Minor and the Balkans.

Only during these five periods has Asia invaded Europe otherwise than by infiltration along the borders.

(*a*) *The Huns*

The Huns came from the heart of Asia, were a branch of the yellow race of man, and under their great leader Attila narrowly missed conquering all Europe. They were a nomadic people, living in the saddle, terrible in battle, swift to destroy. Their restlessness had much to do with

starting the Teutonic tribes on their migrations. Under Attila (died 453) they stretched their kingdom from the Caspian to the Rhine. Not satisfied with that, Attila crossed into Gaul, sacking and burning cities as he went.

The Western world was in disorder as a result of the migrations. Attila was an able general at the head of a swift and savage army. The hour was critical. Finally, near Châlons, in the valley of the Marne, where so many great battles have been fought, the issue was met. Fortunately by this time Visigoths and Romans had united to repel the invader. The carnage was terrible. "Ruthless, manifold, immense, obstinate," a Gothic historian called the struggle. Victory at one time seemed to favor the Huns; but in the end the Goths and Romans prevailed. Attila's forces were overwhelmed and he retreated across the Rhine. Châlons surely deserves to rank with Salamis as one of the decisive battles of the world.

Attila was a typical Tatar, short, dark, broad-chested, snub-nosed. He was known as "the scourge of God" and was dreaded throughout the Christian world. There are generous acts of mercy to his credit as well as a long record of bloody destruction. He and his people were so unlike the Westerners, in appearance and customs as well as language, that any real understanding seems to have been impossible. When Attila died, the power of the Huns crumbled away. Such of them as remained in Europe were swallowed up in the various Teutonic tribes. The first great threat of Asia had utterly collapsed.

(*b*) *The Rise of Islam*

While the Teutonic tribes were marching and fighting across Europe an obscure event was happening far away in Semitic Arabia, the consequences of which were destined to be felt in westernmost Europe within a century. Mohammed (died 632), an Arabian camel-driver of Mecca,

began to see visions and hear messages which he was convinced came from God. The religion which he began to preach spread with amazing rapidity. In his lifetime all Arabia accepted it. The year 622 was taken as the starting-point of a new era, precisely as the Christian era was established. (In that year occurred the Hegira, or flight of Mohammed from Mecca.) The sayings of the new prophet, written down by his followers in his lifetime, were collected in a book soon after his death, called the Koran, which became the Mohammedan bible. He called his new religion Islam, which meant submission, submission to Allah; Moslem, from the same root, is often used for Mohammedan.

Islam was a monotheistic faith like Judaism and Christianity. "There is no God but Allah and Mohammed is his prophet." It was more definite, less mystical, than Christianity. Adherence called for certain simple practices, praying five times a day with the face turned toward Mecca, a pilgrimage to Mecca; and life was regulated by many detailed rules requiring abstinence from strong drink and the giving of alms to the poor, for example. A man was permitted to have four wives and as many concubines as he could afford. The rejecters of Islam were destined to be burned in hell for eternity. The faithful, and especially those who died fighting for Islam, were to enter a paradise profusely provided with beautiful maidens. Woman was from every point of view regarded as a much inferior being.

The spread of this new religion was extraordinarily rapid. In its wake came the equally swift rise of a great and powerful Mohammedan empire. Theretofore the Arabians had been split into numerous warring sects. Now, united by a common faith, they marched forth confidently to conquer in the name of Islam. There is no better illustration in history of the power of a non-economic factor to control the fate of many peoples.

It sent the Arabs northward across Syria, eastward to conquer all Persia clear to the River Indus, and to found the new city of Bagdad near the site of ancient Babylon. Bagdad soon became the richest city of its time. To the west Arabian armies conquered Egypt and marched westward to the gates of Gibraltar. The caliphs—who were the rulers of all Moslems and the head of the Church as well—had tried in vain to cross the straits of the Bosporus and conquer Constantinople.* In the West they had better fortune. Spain was grievously misruled and lacked all sense of unity. The invaders, a few Arabs and many Berbers, dark whites from northern Africa, were aided by factions within and by the persecuted Jews. All Spain to the Pyrenees fell swiftly under the Moslem conquerors.

Emboldened by their success, the invaders a few years later crossed the Pyrenees and set out to conquer southern France. Near Tours in 732—exactly one hundred years after the death of Mohammed—they met the Frankish army in a historic battle. Charles Martel commanded the Christian forces and lived up to his name, which meant the Hammer. He won a sweeping victory that checked for all time the thrust of the Moslem forces north of the Pyrenees.

The story of the Moslem occupation of Spain is long and turbid. It lasted five centuries. The conquerors were divided among themselves; sometimes a powerful Arab was in control, sometimes the Moors, a mixed people of northern Africa, Phœnician, Roman, what-not, who had been conquered by the Arabs and had joined in the conquest of Spain, seized the power. The government ranged all the way from a just and splendid reign by an oriental potentate of the highest type to sloth, corruption, and anarchy.

The Arabian civilization, preserving elements of the hard-won wisdom of the Greeks and the Alexandrian

* It was not until 1453 that a Mohammedan people, the Turks, conquered Constantinople and made it a sacred Mohammedan city. The Sultan of Turkey is now the head of Islam precisely as the caliphs ruled it.

scholars, was far in advance of the dark state to which the barbarian invaders had brought Europe. Beautiful mosques were built in Spain. At Granada the palace of the Alhambra still stands, a monument to the richness of oriental color and design. The greatest contribution of Arabia in this period of sudden intellectual flowering was in mathematics. Algebra is an Arabian word, and the fact gives due credit to a number of great Arabian mathematicians who carried forward the work begun by the Greek mathematicians. The Arabic numerals—including the placing of the digits according to a decimal system, and the use of the zero—began to supplant the clumsy Roman system of numerals in Europe in the twelfth century. Without them modern arithmetic, with its enormous convenience to science, trade, and commerce, would have been impossible. One other great invention brought to Europe by the Arabs deserves to be mentioned here—paper. Both of these inventions came to Arabia from the Far East: the numeral system from India, paper from China. The two constitute almost the only large contributions of the Far East to European civilization.

Most important of all, the Moslem invasion left in Spain a mixed people with a considerable mingling of Eastern and African blood not found elsewhere in Europe. Here was a permanent and essential alteration in the map of peoples, the effects of which were bound to endure long after the star of Islam, that blazed up so swiftly and so brilliantly, had faded in the west to a minor magnitude. It is in a sense fair to think of Spain as a border state, a fusion of Europeans and Semites, somewhat as Russia and the Balkans, the border nations to the east, partake of the character of Asia and of Europe. Yet, as will appear, the European peoples of Spain fought long and desperately to a complete victory over the invaders, and by slaughter and expulsion reduced the alien elements to a minor strain.

4. CHARLEMAGNE AND THE CLIMAX OF DISORDER

Such a turbulent age naturally produced a number of strong men. Charles Martel was one of them. His grandson, Charlemagne, towered yet higher, and stands among the great figures of all history. His life was a picture of his times, and the Middle Ages rightly made him their first and greatest hero.

Charles Martel never held the title of king; but as the king's minister, called the Mayor of the Palace, he was in effect the ruler of the western Franks. Rois fainéants these do-nothing kings were called. By Charlemagne's time the title had shifted to the real masters. It is noteworthy that these new Frankish kings thought it worth while to receive the Pope's approval, and they were all anointed at Rome with holy oil, ruling thereafter "by the grace of God." The fact is striking proof both of the spread of Christianity and the power of the papacy. In the year 800 the Pope crowned Charlemagne Emperor of the Romans, thereby shifting this ancient title to the new line of northern kings and establishing a long-lived state that became known as the Holy Roman Empire, and amid varying fortunes lasted until Napoleon took Europe to pieces and rebuilt it on his own plans.

Charlemagne was born a Teuton and he remained a Teuton in every custom, disdaining Roman splendor. He dressed in the simple Frankish costume—a short tunic of wool or skins and leggings of cloth or leather. He wore his hair long, in the Teutonic fashion. With his great beard and majestic height he was an imposing figure, a truly regal head of the state. He was a huntsman and a fine swimmer; his physical strength played a large part in the success of his military campaigns, which he won rather by his energy and swiftness of attack than by great generalship.

He built the Frankish kingdom into a great empire, uniting the eastern and western Franks, and then conquering the Saxons, a Teutonic people, still barbarians and heathen, dwelling in what is now northern Germany. The latter conquest took many years. Charlemagne fought not less for the Church than for his kingdom, and when he conquered, made the Saxons subjects of the Pope in religion, as well as his own subjects. Later Charlemagne marched southeast and conquered the Lombards, adding northern Italy to his kingdom; east to drive off the Bohemians and other Slavic peoples, and certain Asiatic peoples, kin of the Huns, who were always beating against the eastern frontier of Europe and had settled in the great plain of the Danube, where now is modern Hungary; and southwest into Spain to rescue the Christians from the Moors. In Spain he conquered only the northernmost region, and his expedition thither is best known for a minor incident that had no historical significance whatever, but chanced to be preserved in a famous French epic of the Middle Ages, the "Song of Roland." In the pass of Roncesvalles in the Pyrenees the rearguard of Charlemagne's army was cut to pieces by the enemy, and Roland of Brittany was slain there. So much is history. Upon this the versifiers of later centuries built a long battle-poem, with Roland and his friend Oliver and Charlemagne, the great Christian emperor, as the heroes. The case is a good example of the care with which literary records must be used as the source of history. The "Song of Roland" is mainly myth, the facts are grossly magnified, and the characters largely inventions; yet in its earliest form it preserves much of the spirit of the Carolingian age.

If the Empire and the Church were first in Charlemagne's mind, learning followed close after. He gathered about his court the greatest scholars of his time; in particular, Alcuin of England (735–804). The emperor had no book education in the primitive Frankish court of his

boyhood; he learned to read both the Frankish tongue and Latin in his maturity; he tried also to learn to write, but found the task too difficult for his advancing years. His delight was to be read to by the learned men of his court. By his order Alcuin organized a school of the palace for the education of the royal and noble children; and for the wider diffusion of learning, he directed that a school should be established in every diocese of the kingdom for the children of both freemen and serfs. As had been true throughout the Dark Ages, and was to continue throughout the Middle Ages, it was the Church that kept learning alive, and it was to the churchmen that Charlemagne turned to advance his projects of education.

A noble picture the great emperor makes sitting in his court, listening to this book and that—a history, a grammar, an astronomy, or, his favorite among all, St. Augustine's "City of God"—and planning how these riches of the mind might be shared with his people. Plainly, the line between barbarism and civilization is no easy one to draw; many a later prince, surrounded by vast learning, lacked the wisdom and spirit of scholarship that this rough Teutonic warrior possessed and practised.

The Middle Ages are often dated from Charlemagne's time, and there is much reason for regarding him as the pioneer of much that was typical of that period. But he did not attempt to found a lasting empire. His realm speedily fell apart after his death, and his three grandsons carved it into three kingdoms faintly resembling the later nations of France, Germany, and Italy. West Frankish and East Frankish the two former were called; to Lothair, who took Italy, was also assigned a long narrow strip of territory lying between the two Frankish kingdoms, Lotharingia by name, whence the modern French Lorraine. So early was the problem of an Alsace-Lorraine foreshadowed. In this period the lights of learning which Charle-

magne lit were not extinguished, but all Europe relapsed into fresh disorder and invasion. The great reign of Charlemagne was a false dawn, and it was not until two centuries later that order and progress were resumed.

The old invaders fell upon Europe once more, the Mohammedans entering southern France from Spain and the Slavs and Huns advancing from the east; and a new and particularly bold breed of men, the last of the Teutonic tribes to migrate, the Norsemen or Vikings, from the ports of what is now Denmark, Sweden, and Norway, began to ravage far and wide. Danish sea-rovers invaded England repeatedly in the ninth century. Alfred the Great (848–901), an outstanding king, with many of the noble traits of Charlemagne, fought them with success; but new bands arrived, and for a time England was ruled by a Danish or Norse king. Along the coast of the Franks they harried the coast towns and sailed up the Seine as far as Paris. Scotland, Ireland, Iceland, Spain, Africa, Italy—there were few shores which these daring wanderers of the Viking Age did not touch. To the west they reached Greenland, and almost certainly the mainland of America, Labrador, Nova Scotia, or New England, thus perhaps preceding the discovery of America by Columbus by five centuries. Other Norsemen from what is now Sweden harried the shores of the Baltic and by land marched far into Russia, launching boats upon the Black Sea and the Caspian, penetrating even into Persia. Few other peoples have ever spread so far and wide.

All this they did in open boats, high at bow and stern, low amidships, long and narrow, chiefly propelled by oars, but carrying one square sail for use when the wind was fair.* The war-boats bore a dragon or snake's head at the

* The famous Gokstad ship, dug up from a funeral pyre in Norway, was 79 feet overall, 16 feet wide, and drew 3 feet 7 inches. She carried 32 oars, 16 on a side. She was built of oak and beautifully designed.

prow. The Vikings were marauders and plunderers and went into battle with a peculiar rage that was known and dreaded. The berserk's way it was called, and berserker is used to-day to describe one who fights with a blind fury. Yet they were far from being pirates in the modern sense. They settled large colonies in England and in France and brought marked abilities with them. Their adaptability was great. Settled among the Franks in what became the province of Normandy, they speedily adopted the religion, language, and manners of those earlier immigrants, now well on the way to civilization, thanks to the remnants of Roman influence that had survived the Dark Ages in Gaul. It is these Norsemen, mingled with the Franks and yet earlier Gauls and Romans of the region along the Channel, who are the Normans of history. That name is used to describe these transplanted Vikings fused with an older civilization. How much of their passion for adventure they handed down to their descendants, the Middle Ages were to discover. Normans crossed the Channel and conquered England, and Normans captured Sicily and southern Italy. The Viking Age came to an end, but its spirit flared up again and again; perhaps still lives in many an adventurer of to-day.

5. THE ROMAN EMPIRE IN THE EAST

While western Europe lapsed into these centuries of disorder and ignorance, eastern Europe held high the banner of Greek and Roman civilization and developed its own independent culture and art, Christian in motive yet profoundly influenced by the splendor of the Orient. Byzantine, this Eastern Empire and art are often called, after the ancient city of Byzantium, which Constantinople replaced. The latter might fairly be rated the leading city of the Western world throughout not only the Dark Ages, which

have been described, but the Middle Ages which followed. Byzantine art, there developed, profoundly influenced Mohammedan mosques at Damascus, Cairo, and Cordova, and Christian churches not only in Moscow and St. Petersburg but in Rome, Ravenna, and Venice. The Eastern influences were strong in this Eastern Empire, but the inheritances of Greek and Roman civilization and the Christian religion counterbalanced them. The culture and religion thus formed are preserved in modern Russia, and fairly represent the Janus-like character of that nation, facing both East and West.

Of the great personalities of this Eastern Empire, Constantine has already been mentioned, and the Emperor Justinian (527–565 A. D.) remains to be described. The latter was a great conqueror and a great lawgiver. From Constantinople on the Bosporus he reassembled much of the ancient Roman Empire, including the Vandal kingdom in North Africa together with parts of Italy and Spain. His empire fell apart, but his codification of Roman law has had an influence lasting to this day. Justinian had the air of a modern American executive by reason of his industry and democratic bearing. His wife, Theodora, was his adviser and helpmate and one of the greatest of empresses.

The Roman Empire of the East from 850 to 1050 led the world in commerce as in shipping. It endured precariously till 1453, when the Ottoman Turks captured Constantinople. For these many centuries after Justinian it had resisted successfully the invasions of Persians, Arabs, and Seljuk Turks, thanks partly to the almost invulnerable site of Constantinople. Thus while the raw newcomers of western Europe were struggling upward, this ancient survivor of Greece and Rome did precious work for the continuity of European civilization. It shielded the Western peoples from Eastern attack. It preserved in its libraries much of the classical wisdom and its learned men became the teach-

ers of all Europe at the dawn of the Renaissance in the late fourteenth and early fifteenth centuries.

The cleavage between the eastern and western parts of Europe has been so deep that Western historians long did far less than justice to the Byzantine Empire. The religious separation between the Greek Church—as the Christianity of the Eastern Empire is commonly called—and the Roman Church has never been bridged. The racial differences are considerable. The historians of the nineteenth century treated the Eastern Empire with contempt, missing altogether the critical part which it played in the European story. There is no better place or period in which to study the fundamental unity of Europe while observing the modifications wrought by the East upon the border peoples.

Byzantine architecture clearly records these facts. It combines Greek and Roman elements with Oriental in a new style of great magnificence. The vast church of Saint Sophia at Constantinople—since 1453 a Turkish mosque—is the most famous Byzantine monument. The use of the dome upon a new scale and of mosaics to decorate the interior walls are its conspicuous features in Western eyes. By a profusion of mosaics a rich and dazzling effect was gained, splendid as decoration, weak in pictorial design. Byzantine art tended toward rigidity of form and lavishness of color, yet it is by no means alien to the European scene, as Saint Mark's at Venice and the cathedral of Saint Front at Périgueux in France bear witness.

It has been remarked that the schism between the Roman Church and the Greek Church arose over minor doctrinal disputes. The divergence was widened by the Iconoclasts or "image-breakers" of the eighth and ninth centuries and the result had much to do with cramping the development of Byzantine art. These reformers sought to exclude all relics, statues, pictures, and religious symbols, including the cross, from Christian churches, on the ground that they led

to idolatry. The dispute raged violently in the Eastern Church, and, while the Iconoclasts were ultimately defeated, they left an indelible mark upon their church. Statues were forbidden in the Greek Church, pictures were permitted in the final compromise. Hence the Russian icon is a picture to-day. Even the cross does not appear in churches of the Eastern faith. The dispute touched the Roman Church lightly; while it forbade the worship of images it did not exclude them from churches. The final rupture between East and West came in 1054 as the result of a long accumulation of divergent dogmas. It is interesting to note that the Protestant Reformation of the sixteenth and seventeenth centuries produced an iconoclastic spirit based on theories resembling those held in the Greek Church. But the strange compromise reached at Constantinople, permitting the lavish use of painted figures, provided only they were flat, had little kinship with the bare grandeur of Puritanism. The cleavage of the Christian Church into the three main divisions, Greek, Roman, and Protestant, grew out of long controversies, and it is difficult for the historian to weigh the importance of doctrinal as against practical disputes or suggest how unity might be regained. The unmistakable fact is that for more than a thousand years the Roman Empire in the East, or the Greek Empire, or the Byzantine Empire, as it was variously called, developed a government, a faith, a church, an art, a civilization, distinct from the rest of Europe.

CHAPTER XVII

THE MIDDLE AGES

It is impossible to escape the use of the term Middle Ages. The phrase has come to mean the definite picture of a society as well as a list of events and institutions. Chosen by historians to express the bare fact that these centuries lie between the ancient world and the modern, mediæval has taken on a flavor all its own. For many the word expresses something akin to scorn for a supposed backwardness; as these centuries have often been pictured, it is quite natural that a modern man should feel more kinship with Greece than with the era of feudalism and scholasticism.

A reaction from this attitude is apparent in the historians

of to-day. Were the phraseology of history fresh material to be moulded at will, there would be much to say for abandoning the term Middle Ages altogether and starting Modern Times at the end of the Dark Ages, around the year 1000.* So far as progress goes, the evolution of Western civilization is continuous from prehistoric times forward. As one centre of civilization has spent its force, another has come forward; the torch has been carried on by fresh runners as in a relay race. Dark periods have intervened as fresh waves of barbarians have overrun old peoples. Yet even through these times of turmoil and waiting ancient gains have been preserved beneath the surface. The Dark Ages of Europe just described halted progress for a time, but long before they were ended the advance was resumed. We can best approach the Middle Ages by thinking of them as the time when those forces of confusion had spent themselves and Europe once more was on its way. Based on stern mental and moral training, and inspired by high religious exaltation, they yielded an extraordinary flowering of character and great art. It was also the preparation for all that followed.

It seems best to use the familiar term and to endeavor to correct misapprehensions with regard to the period which it covers. There is ample justification for grouping these centuries together. They saw the perfecting of certain institutions. They possessed a character all their own. The effort will be to present that character in all its vivid traits and yet make clear how it grew out of the centuries that went before and made possible the centuries that followed after.

No period of time has been more distorted and misunderstood. Primarily that is because of the great religious

* There is an excellent statement of this point of view in "French Civilization," by Albert L. Guerard, pp. 129–130; also see the article on the Middle Ages in the Encyclopædia Britannica, 11th ed., vol. 18, p. 409, by Professor J. T. Shotwell.

schism in the sixteenth century known as the Reformation. Protestants have tended to think of the Middle Ages as the reign of Antichrist, and necessarily evil. In return, Roman Catholic writers have glorified the period as in the phrase "The Thirteenth, Greatest of Centuries."* Completely impartial histories of this period, as of the Reformation, have yet to be written. As if religious polemic were not enough, the Middle Ages also suffered at the hands of the "humanists," the rediscoverers of the classics in the fifteenth century. The very term, Middle Ages, expressed their impatience with the centuries that stood between them and their precious Greek and Roman texts. In the same spirit of contempt the word Gothic was later applied to Mediæval Architecture, thereby fastening a complete misnomer upon one of the greatest of architectural periods, for barbarian Goths had nothing to do with the beautiful cathedrals of mediæval France, where the style originated. Lastly, when the age of science arrived in the eighteenth century, there was added the bitter contempt of the scientific mind for mediæval scholasticism. The value of that obsolete philosophizing as a mental discipline for the new Europe was lost sight of in resentment at its cramping effect upon free speculation. The extreme rationalist of to-day still vents his scorn upon the Middle Ages and all its works; but the tide of thought is away from him.

I. THE CHRISTIAN CHURCH

The central fact of the Middle Ages was the Christian Church. It is difficult in this age of many sects and weakened faith to realize what its unity and supremacy meant to the men, women, and children of the time. The nearest modern parallel is citizenship in a nation. Just as to-day almost every one is a loyal citizen of the country where he

* The title of a highly suggestive volume by Doctor James J. Walsh, Catholic Summer School Press.

lives, and the exceptions, the anarchists, are regarded as dangerous people, so their membership in the one Church was practically universal, and heretics were dreaded and despised. Only in its great moments, however, does the modern emotion of patriotism stir people as deeply as religion stirred the people of the Middle Ages. It was the great, controlling emotion of the era.

To complete the picture, anticipating somewhat the next section on feudalism, it is to be noted that there were no strong nations until toward the end of this time. Patriotism was a minor feeling. The chief loyalty, outside of the Church, ran to an individual—the lord from whom one held one's land. There is much truth in the view that the Catholic Church was the real successor of the Roman Empire, and the Pope, rather than the Roman emperor, the true overlord of western Europe.

The early rise of the papacy and the division of the Church, East and West, have already been traced. In the reign of a great king and emperor like Charlemagne, the royal power prevailed over the papal power. Under the weak rulers that followed, the sway of the Pope gained rapidly. In the eleventh century Pope Gregory VII deposed and excommunicated—that is to say, cut off from the sacraments of the Church—an unruly German emperor, Henry IV, and the latter was obliged to cross the Alps in midwinter and appear as a humble suppliant before the Pope. For three days the emperor waited, a barefoot pilgrim, for the Pope's pardon. Canossa was the little town where the penance occurred, and "going to Canossa" has become a standing metaphor for such a submission. The episode became a dramatic symbol of the Church's victory in the great conflict of the Middle Ages between the religious and secular powers. The omnipotence of the papacy was strongly asserted by Gregory VII, and in the thirteenth century by Innocent III, one of the greatest of the popes.

At its height, the mediæval Church was far more than a religious organization, such as the churches of to-day are. It performed many of the functions of the modern state. It levied a tax, a tithe or a tenth of a man's income, and many of its bishops and abbots ruled over vast landed estates that belonged to the Church in perpetuity. It developed a system of law, called the canon law, under which it tried many cases in its own courts, including all cases touching a clergyman, widows and orphans, marriage, wills, heresy, etc. Considered as a government, the Church was an absolute monarchy, for the Pope was its omnipotent lawmaker and its supreme judge. On the other hand, it is to be remembered that, unlike secular monarchies, the principle of inheritance applied neither to the Pope, the cardinals, the archbishops, bishops, nor priests. The Pope was elected by the college of cardinals in Rome, and was often of poor and humble birth. The same democratic principle held true of all the clergy save where corruption crept in. Add the fact that throughout the Middle Ages few other than churchmen were really educated—if a man could read at all it was accepted as proof by some courts that he was a cleric—and it can be seen to what extent ability and intellect centred in the Church. Small wonder that it was by far the most powerful institution of the time.

Yet the papal dream of world-power faded swiftly after 1300. The popes called in the French to help them defeat the emperors and ended by themselves succumbing to the power of a French king and removing to Avignon in southeastern France. For a time there were two or more rival popes anathematizing each other. The Church became the prey of schism and corruption. The great flowering of faith began to fade. Within two centuries (in the years following 1500), amid war and bloodshed, the seamless robe of the Christian Church was to be rent in twain.

The rise of the Church and of the papacy in this period

was in large part due to the rise of the monks, and in particular to the Benedictines and the monks of the order of Cluny. Corruption was rampant in the clergy around the year 1000. The law of celibacy was flouted. The papacy was at a low ebb. A true reformation of religion began in the eleventh century. Something of the spirit of Christ's apostles was recaptured by the mendicant monks, who turned their backs on the things of this world and vowed themselves to a life of poverty.

Saint Francis of Assisi, the founder of the Franciscan order, is a part of the Middle Ages that needs no preface to be understood by modern minds. He is one of the most captivating figures of all time. To know him is to see into the heart of mediævalism, and thereby view with understanding both the immaturity of its intellect and the black shadows among its deeds.

He was born a rich man's son in Assisi, a little hill-town of Italy, in 1181 or 1182. As a youth he led in the revels and fought as a soldier. Captured and imprisoned, he fell ill, and, lying helpless, began to doubt his way of life. He returned to health and gaiety a changed man. One night he gave a banquet, and, crowned with garlands, king of the revellers, marched forth with his friends into the town with torches, singing. He disappeared, and when his friends found him he was in a trance, communing with his Lord. From that hour he spent more and more of his time praying. He tried literally to live as Christ lived, renouncing his wealth, dressing in rags and begging from door to door. "Sell that thou hast and give to the poor and thou shalt have treasure in heaven" became the rule of his life. Yet he never turned recluse or gloomy ascetic. He was a devoted friend. He was always helping the poor and the sick. By nature joyous, he believed that his Lord wished his followers to be joyous. He went about singing, usually little French songs of his own making in praise of his Lord.

He loved the visible world and all things in it. He preached his faith to the birds, he called the wind "brother," and walked lovingly amid grass and vines, stones and trees. His "Canticle of the Brother Sun" begins, "Most High, omnipotent, good Lord, thine is the praise, the glory, the honor and every benediction," and among its praises are these: "Be praised, my Lord, for Brother Fire, through whom thou dost illumine the night, and comely is he and glad and bold and strong," and "Be praised, my Lord, for Sister, Our Mother Earth, that doth cherish and keep us, and produces various fruits with colored flowers and the grass." A poet was Saint Francis as well as the most beautiful character of his time.

Such direct communion with God and rapturous love of Him is called mysticism. It has many forms, and is present in such different religions as Buddhism and the religion of the American negro, as his "spirituals," or hymns, bear witness. The mystic lays little stress on ritual or creed; Saint Francis viewed the religious debates of his time as of small value. It can be thought of as the pure emotion of most civilized religion before man's forms of worship and reasoning processes have converted it into an organized faith. There had always been a mystical element in Christianity. Traces of it are to be found in the Gospel of Saint John. The late Greek school of philosophy, the Neoplatonists, contributed more. Saint Augustine, in the fourth and fifth centuries, the greatest of the Church fathers, author of "The City of God," combined philosophical ability with strong mystical leanings. The Middle Ages saw the flowering of mysticism in Christianity. Something of the beauty of the faith of Saint Francis was wide-spread in the hearts of men in these centuries, and was the source of their noblest achievements.

But no church has ever existed for any length of time without ritual and creeds—a purely mystical faith would

necessarily be restricted to those few who fell within the direct influence of one great leader. While Saint Francis scorned the quarrels over dogma and sought to go back to the simplest form of Christianity as found in Christ's own words, he could not escape the effects of Christian history. For example, he was clearly a follower of the Nicene Creed in his conception of Christ as the true son of God. So the searching debates upon dogma, which developed a system of thought known as scholasticism, were of not less importance to Christianity than was the renaissance of religious fervor due to the monastic orders. Of greatest importance for the future, they were a marvellous mental discipline, a stern exercise in logic and directed thinking, which alone made possible the scientific mind of later years.

As has been seen, the intellectual life of the time centred in the clergy. Even more important, the Christian faith was an important concern of every one. How it sent thousands upon the Crusades and set whole communities to building great churches will be presently described. What more natural than that it held the minds of most thinkers to the task of developing rational thought in conformity with the doctrines of the Church? The modern scientific attitude, of observation and experiment, in the search of generalized laws, never occurred to such minds, since they started out with the passionate conviction that the revelations of God in the Scriptures and the creeds held all essential truth, and that the only problem of the rational mind was to reconcile the universe and the wisdom of the ancient pagans, of Aristotle, Plato, Pliny, of the Greek physicians, with the Christian scheme. Consequently, there was little natural science based on observation. Instead, the oldest and strangest myths were accepted, provided only they came from Christian sources or could be used to drive home an article of the Christian faith.

It is not to be thought, however, that all minds were of

this type or that there was no interest in natural science. Recent investigation has tended to revise older conceptions and to reveal a considerable amount of steady progress in science in the thirteenth century. There was much study of Aristotle's "Physics" and other scientific books. Small groups of men, at least at Oxford and at Paris, practised observation and experiment. There was one investigator of extraordinary skill, industry, and imagination, Roger Bacon (1214?–1294), an English monk, a Franciscan. His was an original mind, so far ahead of its time as to have little influence upon it. He protested against blind submission to authority and exclaimed once in impatience that he wished all the translations of Aristotle could be burned so that truth might be tested by observation. (In his soberer moods he set great value on Aristotle's work.) He seems to have vaguely perceived the whole scope of scientific method. In optics, chemistry, and biology he apparently did important work. For his freethinking he was imprisoned for a number of years. But his scientific leanings were even more seriously hampered by his own mediæval limitations. He is to be honored as a bold pioneer, how bold the following prediction records: "And flying-machines are possible, so that a man may sit in the middle turning some device by which artificial wings may beat the air in the manner of a flying bird." The older historians treated Bacon as an isolated exception. The current tendency is to view him as a man of genius, standing above his contemporaries, but clearly related to his time.

The rise of the universities in the twelfth and thirteenth centuries aided intellectual development by providing independent centres where learning was preserved and taught. Yet they were largely clerical and scholastic in outlook and free speculation was the rare exception. The two oldest, Bologna and Salerno in Italy, specialized, the one in law, the other in medicine. The fame of others, wider in scope, notably the great universities of Paris and Oxford, centred

in the dialectics of theology. Arithmetic, geometry, astronomy, and music formed the "quadrivium," the group of studies that constituted a general education at a university. It was based on the earlier study of the "trivium," grammar, rhetoric, and logic.

There were also, outside the orthodox university circles, the alchemists, the astrologers, and the magicians. The alchemists were the practical chemists of the Middle Ages, but they had scant conception of scientific method, and their chief preoccupation was an effort to transmute base metals into gold. This they sought to accomplish by finding a "philosopher's stone" which would effect the change. One lucky guess they made in their basic theory of the unity of all matter which is not far from the new theories of the atom. But this theory was not reached by any scientific processes, and helped the arrival of science no more than did Roger Bacon's advocacy of experiment or his guess about flying-machines. True science was still barely on the way. Astrology, like alchemy, came to Europe through the Arabs of Spain. It caused observation of the heavenly bodies, and to this extent may be viewed as the remote ancestor of astronomy. Magic was rife in the Middle Ages. An age that could believe in salamanders could believe in almost any myth touching evil spirits or tricks for harming an enemy or benefiting oneself. Of such beliefs was born the dread of witchcraft that was a wide-spread terror of the later Middle Ages and down through the eighteenth century. Thousands of supposed witches were tortured to make them confess, and either hanged or burned.

It was well on in the thirteenth century that the greatest of the schoolmen, Saint Thomas Aquinas, gave the complete and lasting statement of scholasticism. He was the Aristotle of the Middle Ages, and his philosophy is still the accepted philosophy of the Roman Catholic Church. This fact in itself is strong evidence that the schoolmen were not

arguing about unessentials. Toward the end their debates did sometimes fall into highly technical channels; the discussion, often cited, as to how many angels could dance on the point of a needle was typical of this tendency. (Possibly some of the present-day dissertations of doctors of philosophy in our universities will seem equally absurd 500 years hence.) But scholasticism was largely concerned with the fundamentals of human thought. It is impossible to have a religion without some agreement as to what is behind it. There can be a great deal of dogma in a creed or only a few basic ideas; the great debate of the scholastics revolved around one of the basic ideas underlying all religion. This was the famous dispute between Nominalism and Realism. As used at that time, Realism meant just the opposite of what the term suggests to modern minds. The theory viewed ideas as the great realities moulding and transcending the visible world; Nominalism looked in the direction of modern materialism. Both schools of thought used the language of the Christian faith, and the controversy centred around the specific question whether a general idea, "man," for instance, has an existence apart from the mind thinking it. The Realists contended that these general ideas—"universals" in mediæval language—did have a separate existence. The Nominalists argued that they had not. The two points of view represent the two great tendencies of religious and philosophical thought. Under different names and centred about different problems of the mind, they are just as important to-day as ever, and the world is no nearer an agreement than when the schoolmen debated the issue for three long centuries. Both because of its general tendency and because of its bearing on certain dogmas, Realism became finally the accepted doctrine of the Church, and it was a form of Realism that Thomas Aquinas embodied in his great system of scholastic thought.

The flowering of Christianity inspired the people of the Middle Ages to two great enterprises: the Crusades and the building of the cathedrals. There was probably never a more picturesque or stirring time in which to live. A town like Chartres in the twelfth century saw knights buckling on their armor to leave for a new crusade, farmers with their oxen dragging great stones to rest in the walls of the vast cathedral, stone-masons carving statues of a Greek beauty for the niches, glass-workers setting in place the richly colored windows that rank among the most beautiful works of man. At their best, both crusades and cathedrals represented the outpouring of a noble spirit of devotion and sacrifice, and expressed a spiritual yearning as strong and pure as the rapture of Saint Francis. But the Crusades held many black contrasts. In their mingling of high aims and selfish squabbling, of saints and robbers, of heroic bravery, of wicked cruelty, of famine, pestilence, and disaster, they were typical of the whole era that gave them birth.

There were seven major crusades lasting through the twelfth and thirteenth centuries. There were countless other minor expeditions. All had for object the rescue of the Holy Land from the Turks, who had driven out the Arabs in the eleventh century. The Arabs had not interfered with Christians making a pilgrimage to their holy city, Jerusalem; the Turks made the way difficult. A great speech by Pope Urban II fired the enthusiasm for the first crusade. A wandering preacher, Peter the Hermit, took up the cry, "Deus vult" ("God wills it"), and led the first host eastward. It was a motley army of peasants and it failed miserably. Part perished in Hungary, part in Bulgaria, part in Asia Minor at the hands of the Turks. The main forces, composed largely of knights and led by French and Norman princes, were successful. They conquered Jerusalem, slaughtered the inhabitants by the thousands,

and set up a kingdom there that lasted nearly a century. Already in this first crusade, the thirst of the leaders for conquered territory started quarrels that jeopardized the success of the expedition. The rule established was far from secure and soon in danger. Hardly a year went by without some crusaders starting off to the rescue of the Holy Land. A great Syrian ruler, Saladin, a Mohammedan fierce in battle, kind of heart, and a man of honor, captured Jerusalem in 1187. The third crusade set out under Richard the Lion-Hearted (Richard I of England), Philip Augustus of France, and the emperor Frederick Barbarossa, to regain the city. It failed despite the fierce bravery of Richard. One of the noblest figures to take the Cross was Louis IX of France, called Saint Louis. He was a true Christian knight, of heroic stature, at once a sturdy fighter and an ascetic and devout believer. He made two crusades, both failures. In fact, the crusaders never regained Jerusalem by force of arms. As a grim commentary upon the degeneration of the holy expeditions, success came only through the diplomatic wiles of a German emperor, Frederick II. This odd ruler, of mean appearance but great ability, a strange heir to the Roman throne, was always quarrelling with the popes, and he was under a ban of excommunication when he set out upon his crusade. He had organized the kingdom of Sicily with great tact and he approached the Holy Land with the same ingenuity. Without striking a blow, he secured a treaty from the Sultan of Egypt turning over the Holy Land. For fifteen years it remained in Christian hands, and then, in 1244, was lost, not to be recovered until British troops in the World War fought their way once more into Jerusalem.

The Crusades began as a glorious and noble adventure. That spirit held true for many crusaders throughout. But there went along from the start a host of self-seeking adventurers and plain vagabonds, highwaymen, and cut-

throats, who wanted only riches and excitement. In addition, the commercial aims of Italian traders and the practical colonial aims of princes gave a business flavor to the crusader that increased with the years.

The results of the Crusades are not easy to estimate. Modern historians have tended to minimize them, holding that the influence of the East came to the West chiefly through the Arabs of Spain or Sicily. But the Crusades did open up new trade routes to the East and led to the discovery of Asia by European travellers. Marco Polo wrote his famous book of travels, across Asia to China, around the year 1300. There was a wider horizon for the many crusaders, who came in contact with a new civilization, and a vast continent for the bolder explorers. The Crusades were a stimulating and enlightening experience for western Europe. They failed tragically in their one aim—the Turk was encamped on the shores of the Bosporus when the last crusade ended, and within a century and a half he was to conquer Constantinople and enter Europe as far as the Danube. It has often been said that the Crusades threw back the Eastern drive. But the crusaders quarrelled with the emperors at Constantinople and weakened their rule, and it was upon these Eastern successors of the Roman emperors that the brunt of the Eastern attack finally fell.

It is in the light of the Crusades that are to be read the tragic stories of the persecution of heretics at home. Saint Bernard, one of the noblest churchmen of his time, urged recruits for the second crusade in this language: "The Christian who stays the unbeliever in the Holy War is sure of his reward, the more sure if he himself be slain. The Christian glories in the death of the infidel, because Christ is glorified." In our modern times of confused and weakened faiths, it is difficult to comprehend the spirit behind such bloodthirsty words. It is necessary to conceive the surging religious faith inspiring the sentiment to do it jus-

tice. Toleration is much easier when one has scant confidence in his own faith and little loyalty to it. As was suggested before, the modern attitude toward an anarchist as a traitor to his country is a faint parallel to the mediæval attitude toward a heretic at home or abroad. The wholesale slaughter of heretics in southern France stained the records of the Middle Ages. The Waldensians were believers in the simple faith of the gospels. The Albigensians were complete heretics, rejecting Christianity for one of its early rivals, a descendant of the ancient Persian religion of Zoroaster. The latter were suppressed in the reign of Pope Innocent III with a ferocity that slaughtered tens of thousands. As a sequel the Inquisition was invented, a system of church courts designed to discover heretics and turn those who were unrepentant over to the state to be burned alive. Torture was used, as in other courts, to obtain confessions, and especially in Spain the Inquisition became an instrument of secret accusation, injustice, oppression, and extreme cruelty.

If the Inquisition was the blackest achievement of the Middle Ages, the cathedrals were the fairest. A period that left nothing else could still deserve to stand with the greatest of creative eras. The ranking of different works of art cannot pretend to exactness, but in that small list of supreme achievements to which the Parthenon belongs, common consent would add such cathedrals as Rheims and Chartres. The mediæval surge of religious feeling scarcely requires any other proof than the existence of these vast and beautiful buildings. Whole communities labored in their rearing. Every sort of workman lent a hand, from the farmers with their teams and the stone-masons to the goldsmiths, the glass-workers, and the organ-builders. Every art was lavished upon these houses of God. One can fairly feel the great revival of religion bursting forth in these superb monuments. Never was an architecture

more youthful, more original, more completely sprung from the soil. In the Dark Ages, there developed in France what is called the Romanesque style. It was the old Roman architecture, with its round arches, small windows, and heavy walls, adapted to Christian use. Its effect was sombre and severe. The new style, misnamed Gothic, developed swiftly in the twelfth century in the region around Paris. The pointed arch is one of its invariable marks, and is often treated as if it were its essential feature. Rather is the arch to be thought of as an incident in a system of design by which the walls were pierced with great windows, and the eye carried aloft to new and soaring heights of nave and steeple. Chief of inventions was the flying buttress by which the side thrust of a roof was met not by sheer weight of wall or pillar but by these stone props. Higher and higher soared these religious sky-scrapers, more and more delicate became the buttresses, richer and more ornate was carved the sculpture. The decoration of the cathedral, its windows and its sculpture, made of it a huge story-book, an encyclopædia of Christian learning and anecdote.* The thirteenth century saw the perfection of Gothic art. Thereafter the carving became over-elaborate, and, as always when inspiration weakens, a marvellous technic replaced the old sincerity. The decline of the mediæval faith was mirrored in its cathedrals quite as clearly as was its rise. At its best the sculpture of the Middle Ages (the "Beau Dieu" at Amiens, for instance) possesses a serene beauty that suggests the greatest of Greek statuary.

The Middle Ages produced, in addition to scholastic arguments, a great mass of hymns, romances, fables, chron-

* Victor Hugo was misled by some grotesque carvings on Notre Dame into the notion that the spirit of the mediæval cathedrals was democratic and to a considerable extent irreligious and anticlerical in their origin. This view is considered an error by current authorities. The cathedrals were community efforts, but the leadership was always in the clergy, and the inspiration was faith.

icles, epics, and other writings, but little literature of the first rank. The troubadours in the south of France and the minnesingers of Germany made lovely lyrics. Miracle-plays about the lives of the saints and the Virgin, and mysteries, based on the Bible stories, were the rude beginnings of modern drama. Were the era not a stimulating one, it would seem strange that in Italy there should have arisen one great and unique poet, who is by common consent ranked with Shakespeare among the few universal writers. Like the cathedrals, Dante was the peculiar product of the Middle Ages, and his works are their complete expression. It would be difficult to overstate the greatness of Dante's nature; he was a learned scholar, a student and practitioner of politics, a noble and imaginative poet. His life lies on either side of the year 1300, and the action of the "Divine Comedy," his greatest poem, an epic of man's life, death, and salvation through Christianity, is laid in that year. There were precursors in poetic form and in thought, but he stands a lone genius of his art and time. He wrote not in Latin, as did the clergy, but in the vernacular of his country, the newly formed Italian, a descendant of Latin simplified by barbarian tongues and enriched with Teutonic roots.

2. FEUDALISM AND THE RISE OF THE NATIONS

The Teutonic barbarians swept away the unified organization of the Roman Empire, and put a large number of small fighting tribes in its place. Charlemagne attempted to weld these petty groups, almost patriarchal in their character, into an empire. He succeeded by main strength; but at his death the empire broke into its warring parts. There then developed the strange form of government known as feudalism. It grew naturally enough out of the terrible confusion of the Dark Ages and the failure of the empire to bring order and security. But such a failure of cen-

tralization is unusual in history. Japan and India furnish the only other important examples. Feudalism can perhaps best be thought of as a case of arrested development, caused by a deadlock between opposing forces, a conflict between the principles of patriarchal society and those of a political state in which neither was victorious.* Had a strong Frankish Empire been permanently established, there might have been no feudal system, and western Europe might conceivably have outgrown her divergences of blood and language and be one nation to-day. Instead, the facts of disunion were crystallized; the confusion of the Dark Ages was organized into a stable system. When the political state finally gained the upper hand, Europe was not one state but many states, of different customs and languages. Thus the importance of feudalism in the development of Europe is very great. Its whole structure has vanished, its customs, even its phraseology, seem remote to modern minds. Its influence has been and is enormous. It has been idealized, held up as the best form of government; it has been damned as the worst. Feudalism unquestionably preserved and intensified certain old traits of character and habits of mind. Those who admire feudalism rate these characteristics as virtues, and all-important virtues. Those who condemn feudalism consider these traits vices, or at best of small importance, and insufficient to counterbalance the undoubted evils of the system. Among these traits are personal loyalty, obedience to landed authority, attachment to locality, and a generally conservative outlook.

Feudalism developed gradually in the Dark Ages. Within certain broad limits it followed the same course throughout western Europe. But it was always changing, was at widely different stages in different regions, and was never a uniform system. Certain grave divergences pro-

* Jenks, "The State and the Nation," p. 136.

duced profound and permanent effects upon the history of France, England, and Germany. It is impossible to describe it in detail. The most that can be done is to trace its origin, present its completed form, and suggest its main contrasts with the modern state.

It would be impossible to exaggerate the turmoil of the Dark Ages. Down through the Middle Ages, fighting seemed almost the natural state of man. Church councils proclaimed the famous Truce of God in no hope of ending war but to secure a "closed season" of peace, so to speak. The truce forbade fighting during Lent, on holy days, and from Thursday to Sunday in every week. This left only three days for warfare, and the truce does not appear to have been very well observed. There was for a long while no national authority with an army to put down disorder. There was no police system. These conditions gave the landed proprietor his chance. He alone could organize a fighting body for offense and defense. He alone could build a walled castle within which the surrounding peasants could take refuge when the invader came. Partly he gained his great estate by grant from the king, partly he gained it by voluntary or forced surrender of the small landowner who gave up ownership of his acres in return for protection. In either case, he held it by force of arms. Such a great landowner, a baron, for example, was far more than a mere landlord. Within his territory he controlled the courts, put down rebellion, collected taxes, coined money; in fact, did all the things that a modern state does. At the height of the feudal system, before the rise of national government, these great lords were practically supreme in their estates. All they owed to the king were certain feudal duties, the chief of which was to respond at call with a certain number of fighting men. Whether they responded or not depended on the vigor and power of the monarch reigning.

Theoretically there was a perfect hierarchy in the feudal system. The great nobles, the dukes, counts and viscounts, and the bishops and abbots of the Church held their land from the king; they were his vassals and took an oath of loyalty to him. Most of their land was, in turn, held by lesser nobles, barons, knights, and squires, who were their vassals. At the bottom were freemen and serfs, who held their land from the nobles. Most of the peasants in the Middle Ages were serfs, bound to a particular piece of land, as a rule, from generation to generation, yet in a much better condition than slaves, for they could not be sold or otherwise treated as the property of their lord. (Slavery had disappeared, save in the case of domestic servants, by the Middle Ages.) But this hierarchy was seldom achieved. It was confused by countless exceptions, immunities, and cross-holdings. By the time the experts had set down the complete theory in books, the whole system was being undermined by the use of the royal power.

A sharp cleavage ran between nobles and non-nobles. The former were the fighting class; even the squire, at the foot, had his horse and coat of mail. Artisans and peasants did the work of the world. The relation of lord and vassal existed only within the noble class. It was a relation of mutual honor and trust. When the vassal received his fief, which was to say his grant of land, he knelt before his lord, placed his hands within his lord's hands, and pledged himself to be his lord's man for the fief he held. Then the lord bade him rise, kissed him, and the vassal took the oath of fidelity, upon the gospels, or the relics of a saint. The obligations thus taken by the vassal were to fight, usually for a certain number of days and bringing a certain number of followers, to help the lord sit in judgment, and upon certain extraordinary occasions to pay donations—when the lord had to be ransomed from captivity and when his eldest son was knighted or his eldest daughter

married, for example. In return, the obligation of the lord was to protect his vassal. By the time the feudal system was in full force, the hereditary principle was firmly established among the nobility. That is to say, the title always descended to the eldest son, and the fief as well descended to him. Thus while technical ownership of the land remained in the lord, and the fact was sometimes to his advantage, the vassal had all the ordinary rights of modern ownership.

Not only was all the work done by the freemen and serfs, but they paid the bulk of the taxes as well. There was an annual levy on each serf, a head-tax; there was additional right to collect an additional tax almost at the owner's pleasure; and the serf was bound to perform a certain number of days' work for the repair of roads or tilling the lord's own land. The freeman paid rent and a number of other dues—to pay for grinding his grain at the lord's mill, and so on. One important gain for the freemen and serfs was the right of inheritance. By the time of the Middle Ages the land held by a non-noble descended to his eldest son exactly as the fief of the noble descended to his eldest son. The actual condition of the peasants in the Middle Ages has been much disputed. They certainly had very few rights or protections. They were largely at the mercy of the nobility. But whether they were worse off than the slums of a modern city is doubtful. Such comparisons are most difficult to make.

To sum up the chief characteristics of the system: it centred about a holding of land and was essentially the product of an agricultural region; it involved a rigid and hereditary class system by which a very small number of nobles and their descendants did the fighting and a very large number of peasants did the work; personal loyalty was at the heart of the system as in any patriarchal fight-

ing community; the small principalities strengthened local customs and local attachment. The democratic rule in the Church made an important exception to the class system. By becoming a cleric, the poorest peasant boy could become a great and powerful bishop, abbot, cardinal, or pope.

Already at the height of the Middle Ages, in the twelfth century, feudalism was undermined and doomed. Several causes contributed. The growth of the towns was one. These developed rapidly and tended to become independent of feudal obligations. The feudal system had no real place for the industrial population of a large town. To protect themselves, the artisans in each particular trade began to form guilds, of goldsmiths, weavers, cobblers, butchers, and so on. At their best, these mediæval guilds gave an admirable system of production. A youth began as an apprentice and spent a number of years learning the trade from a master, the most skilled of the workers. The ordinary workmen were called journeymen. The training was thorough, the standard of work high; a workman knew every part of his trade and turned out a completed article. Unfortunately, the guilds tended toward selfish monopoly, the position of master became almost hereditary, and the old free spirit of the guild disappeared. The great rise of commerce due to the Crusades and the bringing of luxuries from the East also fostered the towns. There were merchants' guilds, of great wealth and power. The towns of Italy, where feudalism had never got a strong hold, were among the first to rise to power and freedom. Trade was their chief source of wealth, and the manufacture of jewelry and fabrics of wool and silk the next. In the fourteenth century Venice had a merchant fleet of 3,000 vessels. A second famous group of trading towns formed the Hanseatic League in northern Germany. By 1300 there were seventy cities in the league, including such famous places as Hamburg, Cologne, and Bruges in Flanders.

But the chief enemy of the feudal system was the king and the nation which he sought to hold together and strengthen. It will be simplest to trace the rise of each nation separately.

The turning-point in England was the familiar date of 1066 when William the Conqueror, then duke of Normandy, crossed the Channel, won the battle of Hastings, and had himself crowned king. This brought a new and vigorous breed of men to the head of English affairs. They were Norsemen fused with Frankish blood, speaking the tongue of the Franks and steeped in Frankish civilization. They were in turn absorbed by the larger native population, but not without markedly influencing the language, character, and history of the English people.

On the purely racial side they did not bring a strain of blood very different from the rest of the Teutonic tribes that had been overrunning England since the fifth century. They left the population of the islands as they found it, a thorough mixture of the three main strains of man in western Europe: Mediterranean, Alpine or Celtic, and Nordic, the last preponderating. The English language happens correctly to reflect this fusion of North and South and the leadership of the North. It was based on the Teutonic dialect spoken by the Angles and Saxons who conquered England—often called Anglo-Saxon, though many modern philologists prefer the term Old English. (The older languages of the Celts were driven to the far corners of the islands, where they survived to modern times as Gaelic in Scotland and Ireland, Welsh in Wales, Cornish in Cornwall. Breton, the language of Brittany, in northwestern France, is another Celtic tongue that has survived to this day.) This early tongue was completely transformed in the Middle Ages. Many of the words were lost. The survivals, however, include the bulk of ordinary speech. The Norman invasion greatly enriched the tongue, adding a

great number of French words. The structure of the language and its core, so to speak, remained northern. There were, of course, many other sources for words, Celtic survivals, Latin words from the Roman occupation, Danish, and in modern times an endless number of words from Latin, Greek, and many other tongues. The English language is almost as mixed as is the English race.

William the Conqueror was a masterful ruler, and he did England the great service of subjecting the whole feudal system to a strong monarchy. As a result, the country escaped the extremes of feudal localism, and the English nation was the first in western Europe to take form. As has been set forth, feudalism in theory placed the king at the centre of the system; the nobles held their land from him and were his vassals, owing him loyalty and military support. In other countries this theory was not lived up to. Great nobles were, in fact, often more powerful than the king. The lesser nobility, not holding land directly from the king, looked to their lord for orders and felt little sense of loyalty to the royal cause. In England, William required every landowner to take an oath of loyalty directly to him. He prevented the development of great holdings.

Much of this work was undone during the reigns of weak successors, and it was not till the great-grandson of William, Henry II, came to the throne in the twelfth century that further advances were made. This strong king was a born ruler, a tireless organizer. He destroyed a number of castles built by rebellious nobles. He sent his judges to hold court throughout the country, thus substituting king's courts and king's justice for the local justice of the nobles provided by the feudal system. The grand jury made its appearance, followed, later in the century, by the petit jury. The common law, based on ancient customs, as contrasted with the French law, based on Roman law, began to take form. He conquered Ireland, up to this time ruled by a

number of petty kings. By inheritance and marriage he gained control of all western France. Normandy and Brittany came from his great-grandfather. His mother had married Geoffrey Plantagenet, count of Anjou, and through him he held Anjou and Maine. By marrying Eleanor of Aquitaine he gained southwestern France. Thus at this time the English king held more than half of France, and the larger part of his lands lay south of the Channel. Here was the cause of endless fighting, including the Hundred Years' War from 1337 to 1453; the English were not driven entirely out of France until 1558. Henry II had ambitions to control the clergy, and the murder of Thomas à Becket, archbishop of Canterbury, was an accidental result of this policy. Becket opposed and irritated Henry, and was killed in the chancel of his own cathedral by overzealous followers of the king. By the threat of excommunication the Pope compelled Henry to make public penance. In this first clash of an English king with a pope, Rome was victorious.

As happens again and again in the history of monarchies, the great Henry II was succeeded by far from great sons. John has many claims to rank as the wickedest of English rulers. His reign is famous above all else for Magna Carta, a charter of English liberties forced from John in 1215 by the barons, in revolt against his tyranny. They marched against him in force, and upon a meadow at Runnymede, by the Thames, near London, he signed with them this statement of an English freeman's rights. This most famous of all governmental documents made the law of England supreme over the will of the monarch. It was a reaction from the growth of kingly power begun by William the Conqueror; but it did not break up the kingdom into principalities as did feudalism in France; rather, by defining the rights of king, nobles, towns, merchants, and plain freemen, it laid the foundation for the

gradual development of a limited or constitutional monarchy in which England led all Europe. Magna Carta contains a clear forerunner of the principle of parliamentary government. It provides that no extraordinary tax shall be levied without the consent of the common council, composed of the bishops, abbots, and the greater nobility. One of the great provisions, the source of an important clause in the American Constitution, is the following: "No freeman shall be taken or imprisoned, or be disseized of his freehold, or outlawed or banished or in any way damaged . . . but by lawful judgment of his peers, or by the law of the land." For a similar check on the arbitrary power of a king to imprison whom he willed, France had to wait till the French Revolution. Thereafter the development of constitutional rule was steady. Before 1300 the council became known as Parliament and a new class of members was added, known later as the commons, and consisting of knights and citizens of the towns. Some time after 1300 Parliament was divided into the House of Lords and the House of Commons, and the great institution upon which modern parliamentary government the world round has been modelled began its historic course.

The same period saw the conquest of Wales and the beginning of the long struggle between England and Scotland that was to last three centuries, till a Scotch king ascended the throne of England in 1603. There was a difference of blood and language behind this warfare. The Teutonic elements were not nearly so strong in Scotland and the Celtic were far stronger. The Scotch kings turned to the French kings as their natural allies in the warfare, and the effort of the English to maintain themselves in their French possessions was complicated by the presence of this hard fighting enemy to the north.

The growth of the French nation was far slower. It was more difficult in France to subdue the nobles. Instead,

the royal power gained bit by bit, largely through increases in the royal domain, that is to say, land not held by any great vassal. One dynasty, the Capetians, ruled through most of this period. Philip Augustus, Louis IX (Saint Louis), Philip the Fair, and later the curious, crafty Louis XI of the house of Valois were the most conspicuous rulers. By conquest, marriage, and confiscation these kings gradually made themselves lords of the most of France, which they ruled just as any other feudal lord ruled the lands which he held as vassal of the king. Here was the weakness of the French development; the king was an absolute master within the royal domain, and French government matured in these regions. There was a French Parliament, the Estates General, in which the townspeople were represented, but it did not become effective. There was no unity of sentiment among the nobles to force a charter from the kings. Doubtless the Hundred Years' War, fought on French territory, had much to do with preventing the growth of constitutional rule in France and establishing the absolutism that caused the French Revolution. For one thing, it gave the kings of France occasion to develop a standing army independent of feudal service.

This terrible period of intermittent warfare was a tragedy for both nations, but particularly for France. To add to its horrors, the Black Death came in 1348–1349 to kill a third or more of the population in Europe. The war was a war of conquest begun by Edward III of England as a claimant to the French throne. The two famous battles of Crécy (1346) and Agincourt (1415) were both victories for the English longbows against the French knights in their heavy armor. At one time most of France was conquered. It was not until Joan of Arc saw her visions at Domremy and inspired the soldiers of France that the tide of battle turned. She was burned to death as a witch by the English at Rouen in 1431. By 1453 the English were driven

out of all France save only the port of Calais. France was at last a nation.

Too little is known of the fundamental springs of human action, whether of individuals or of groups, to determine why France and England thus finally become separate nations. Both peoples were of greatly mixed blood, and both held the same three racial elements. The northern element overbalanced the other two in England. In France, while there can be no pretense to accuracy, it is perhaps fair to estimate that the three strains, northern, Celtic, and Mediterranean, were more or less equal. In this respect it is unique.

France is often classed as a Latin nation, with Italy and Spain. The facts as to Spain have already been suggested. The classification is hardly more accurate as to France. The northern element was strong throughout France in the days of the Teutonic invasion. The very name of the country is northern. Only in speech is France to be classed with the southern nations. Instead of the Frankish tongue prevailing in France, Latin survived the invasions and, having lost many of its inflections on the tongues of the people, developed into French. It is grouped with Italian and Spanish, similar popularized descendants of Latin, under the name Romance Languages, Romance here meaning simply Roman. Few Celtic words survived in French and not many more Teutonic. Two main dialects developed: one in the north, the *langue d'oïl,* and the other in the south, the *langue d'oc,* the names coming from the words for "yes" in the two speeches. The troubadours sang in the *langue d'oc.* But the northern tongue prevailed and is the basis of modern French. It is interesting to note, however, that as a Celtic tongue survives among the peasants of Brittany, so the *langue d'oc* is still heard in many parts of southern France.

The East Frankish kingdom, the forerunner of modern

Germany, made little progress toward unity in the Middle Ages. There the worst weaknesses of feudalism continued till centuries later. This was not for lack of strong kings, of whom she had many. Racial and geographical divergencies were among the causes of this arrested progress. As was observed in the cases of England and France, the sources of such developments are too complex and obscure to be analyzed or weighed with accuracy. Plain chance may well have played its part. Probably the fact that the king of these eastern Franks succeeded in annexing permanently the title of Roman emperor had a similar effect. This seems like a paradox. But the proud title kept these emperors away from their real kingdom much of the time, mixing in Italian or papal politics. By the year 1000 the king of the East Franks was securely established as emperor of the Romans, and what is now Germany became a part of the Western Roman Empire. In the twelfth century Frederick Barbarossa added the word Holy to the name and it remained the Holy Roman Empire for 500 years. This strong emperor believed to the full that he was the heir of the Cæsars and reigned by God's will. Yet with all his ability and energy he did not succeed in subduing the Italian cities in northern Italy. His grandson, Frederick II, has already been mentioned, by reason of his successful crusade while excommunicated; this free-minded and able ruler spent much of his time organizing and ruling the Sicilian kingdom, consisting of Sicily and southern Italy to the south of Rome and the Papal States. Soon after his death all this was lost.

Thus before the end of the thirteenth century the Holy Roman Empire had lost control of its Italian possessions. Switzerland and the Netherlands were destined to break loose within the next 300 years. Throughout the empire the central power remained weak; the real rulers of the eastern Franks were the nobles. Not until the nineteenth

century were these countless principalities to be welded into a modern nation.

The languages which developed in the area of modern Germany were all Teutonic, closely allied to the speech of England before the Norman Conquest. Modern German is the descendant of dialects prevailing near the centre of the whole region. In comparison with English, it has been far less influenced by other tongues and is much more nearly a pure Teutonic language. Racially the peoples of Germany were a mingling of Teutonic and Alpine strains. The Mediterranean type seems to be wholly absent, this fact constituting the most important contrast with both England and France. To the east there was a large admixture of Slavic blood, an eastern branch of the Alpine race, according to many anthropologists. The Teutonic elements were strong, but the dark broad-heads of the Alpine stock held their own, especially in the southern areas; in modern Bavaria, for example.

For quite other reasons, Italy was equally slow to develop national unity. The Papal Estates, ruled by the Pope as a feudal lord, cut across the middle of the peninsula from Rome to Ravenna. The region to the south, of which Naples was the most important town, with a population much mixed by influx from Greece and Carthage, was slow to develop, and, like the island of Sicily, was the easy prey of conquerors. The story of Sicily is a unique procession of colonizations and conquests. In turn, Greeks, Phœnicians, Carthaginians, Romans, Vandals, Ostrogoths, Saracens, Normans, Germans, Frenchmen, Spaniards, Austrians, and then again Spaniards, down to the days of Garibaldi, held it. Perhaps the most extraordinary adventure of the Middle Ages was the conquest of Sicily by the same breed of roving Normans who conquered England. Only consummate daring and furious fighting ability could have achieved this bizarre invasion of the South by the

North. Two Norman brothers, Robert and Roger Guiscard, accomplished the feat about the time of William the Conqueror. A son added southern Italy to his realm, and took the title of king of Sicily. He launched fleets against all the Mediterranean and reigned as one of the richest and most powerful monarchs of Europe. He had the same toleration for foreign creeds and languages and races that the Normans showed in France and England. At Palermo he built a church with Norman doors, Saracenic arches, and Byzantine dome. But here in the South the Norman genius, brilliant as it was, could not permanently alter the tide of events. The strange hybrid of civilization became part of the Holy Roman Empire under Frederick II; was conquered by Charles of Anjou, a powerful French noble; and the French were in turn thrown out of the island in 1282 by an uprising and massacre called the Sicilian Vespers, because it broke out as the church-bells were ringing for the vesper service.

Meantime in northern Italy there were springing up the most prosperous and progressive towns of all Europe. This was a region that had been overrun in the sixth century by a late tide of Teutonic barbarians, the Lombards, who rivalled the Franks in force and cruelty. The great plain to the north of the Po is still called Lombardy after these Teutonic conquerors. Here, as throughout Italy, the invaders did not succeed in imposing their language or their customs upon the region. But they made northern Italy a greatly mixed race of northern, Alpine, and Mediterranean strains. The language remained a popularized descendant of Latin, like French and Spanish. Among the towns that grew up in Lombardy and the surrounding regions were Milan, Venice, and Florence, which were destined soon to become the intellectual and artistic leaders of all Europe. Trade with the East born of the Crusades was the foundation of Venetian prosperity. The rivalry of these towns

was intense, and they combined with difficulty only to repel a foreign conqueror, as when the Lombard League forced terms from Frederick Barbarossa. In most cases they had gained their independence, like the other free towns of Europe, gradually, by revolt against their feudal lords. They began as aristocratic republics, ruled by elected magistrates and boards; they went through countless terrors of party feuds, mob uprisings, and finally despotism. It was in this region of jealous, prospering, independent communities, wholly lacking in national spirit, racked by frequent revolution and bloodshed, that the next great flowering of the human spirit took its beginning.

The problem of nationalism in Spain was complicated by the alien rule first of the Arabs, later of the Moors, dark whites from northern Africa, largely of Arabian origin, who followed in the wake of the first invaders. This Eastern conquest made Cordova in the tenth century the most splendid city of Europe except Constantinople, and placed the civilization of Spain far above that of the rest of Europe. But the contest between Christian and Moslem would not down. The Middle Ages saw the climax of the struggle and the final defeat of the Mohammedans. The growth of the nation was delayed by the development of separate kingdoms which were not united till much later, in the fifteenth century, in the famous reign of Isabella of Castile and Ferdinand of Aragon. The small kingdom of Portugal, that like other small states of Europe was to have its hour of brilliancy, was simply one of these kingdoms that maintained its independence. The Spanish language, a modern Latin, was enriched by a large number of oriental words brought in by the Arabian conquest. Racially the Spanish stand apart from the rest of Europe by reason of the admixture of Eastern and north African blood. Since their original Mediterranean stock was overrun by Celts and Teutons, the Spanish are perhaps the most mixed of peoples.

Superficially, the Middle Ages presented a simple and unified appearance; no period more so. Yet at the height of the era the nations of modern times were already forming, to raze the very foundations of mediævalism. The fact is a useful warning of the danger of taking any such period of history too seriously. Eras are helpful to analysis and portrayal. They have no real existence; there are always counter-forces present to destroy any thorough unity of design, and history remains a stream of countless currents and eddies that defy accurate measurement or description.

From a modern perspective, the Western world must view the Middle Ages as significant not one whit more for their typical institutions like feudalism and the Church, profoundly as these have influenced modern peoples, than for the origin of nations in the modern sense. Europe is but a promontory of Asia, not one-quarter its size and but little larger than the United States. Yet it is divided into more than a score of nations, and its inhabitants speak some sixty different languages. Such extreme diversity and division are one of the most striking characteristics of modern Europe, and, considering the comparative homogeneity of its racial strains, an extraordinary phenomenon. The Middle Ages saw the decision taken in this direction, the crystallization of this diversity, and the beginning, alongside the old loyalties of feudalism, of the new loyalty of patriotism.

CHAPTER XVIII

THE RISE OF THE EAST

I. CHINA

While Europe was slowly rising from the Dark Ages, through the Middle Ages, into the Renaissance and beyond, the people of China achieved their peak and passed it. By coincidence the three great dynasties of China corresponded roughly in time with three periods of European history. The Tang dynasty (618–907 A. D.) and the Dark Ages were roughly contemporaneous, the Sung dynasty (960–1279) matched the Middle Ages, the Mings (1358–1644) the Renaissance.

But in the case of China, the first was unquestionably the greatest. While disorder was at its height in Europe the Chinese reached their most brilliant civilization. Under the Tang rulers, the empire was as successful in its wars as in its arts. Its boundaries were extended from the Caspian Sea to the Pacific. Some of the most beautiful of Chinese paintings, carvings, and bronzes were produced and Chinese poetry reached its highest point. The Sung dy-

nasty showed less vitality, though the list of its poets is long and the landscape painting notable. It was interrupted by the Mongol invasion of Genghis Khan, whose conquests are soon to be related. The period of the Mings showed a cultured eclecticism and a high level of craftsmanship rather than creative imagination.

Why Chinese civilization should not have gone forward from the period of the Tang dynasty has been lengthily debated. In the present rudimentary state of investigation and study of Chinese history, no clear answer is possible. Stress is often laid on the backwardness of Chinese writing. The literary language has come down from before the time of Confucius practically unchanged. This continuity of 3,000 years contrasts sharply with the rise and fall of languages and literatures in western Europe. As one result of this conservatism, Chinese writing remains the most elementary of civilized languages. It lacks even an alphabet. By contrast, language in the Western world has developed to an endless variety of form and expression and high state of organization. The speculation is obvious that with an alphabet China might have progressed farther. But more fundamental causes, looking to the basic facts of character, custom, and philosophy, must also be considered. The hour is still afar when analysis and generalization with respect to China may be attempted.

What is clear is that more than a thousand years ago Chinese statesmanship, poetry, and art reached their climax. Since then achievement has been considerable but progress has been limited. The old customs and the old morality have kept the Chinese people generally peaceful and contented. Their strength of character, their continuity, their sense of beauty, cannot be questioned. Here is one of the great peoples of the earth, and the Western mind should certainly be slow to doubt its future, considering its enduring successes in the past.

2. THE MONGOLIAN CONQUESTS

China had been periodically invaded from the north and west, and the thirteenth century brought the greatest of the conquerors to Peking. These were the Mongols, dwellers in and around the Gobi Desert. They were another branch of the yellow race, more closely akin to the Turks than to the Chinese, whom they conquered. This region was a reservoir of nomads, precisely as had been the Arabian Desert to the southwest, and the inhabitants were doubtless driven outward by climatic changes as were the Arabian peoples. They owed their extraordinary career of victory to the genius of several leaders—Genghis Khan (1162–1227) and his grandsons, of whom Kublai Khan was one. The former, whose name is really a title that he assumed meaning "Great Ruler," was one of the mightiest of all the conquerors. He was a great cavalry general, and a tolerant patron of learning and religion, for all his barbarous treachery and bloody ways. At his death he was the master of the greatest empire ever subjected by one man; his conquests ran from the China Sea on the east to the Indus River on the south and the Dnieper on the west, an area many times the United States in extent. His armies had plundered and slaughtered far into Russia. There is no more picturesque figure in history than this dweller in a tent who by sheer military genius made a small nomad people supreme across a continent.

Genghis Khan showed the same toleration for all religions that the Chinese habitually showed. But complete toleration based on a lack of strong faith in any religion is not as significant as less toleration gained amid fervent beliefs. It is easy to exaggerate the importance of this childlike curiosity that welcomed uncritically every new faith. Genghis Khan had no ability to organize his conquests. He sought only effective police order, swift military communi-

cations, and tribute. When his military genius faded in his descendants, the empire broke into its component parts. The last of the great nomad conquests left no enduring mark, of language or institution or faith. Only in so far as it deposited yellow peoples in Europe did it permanently alter the map of the world.

When the Great Khan died his empire was divided among his descendants. One grandson, Kublai Khan (1216–1294), united all China in one empire, and, adopting the higher civilization of the Chinese, ruled wisely and well. It was his court that Marco Polo (*c.* 1254–1324), the young Venetian merchant, visited with his father and uncle toward the end of the thirteenth century. "The Travels of Marco Polo" are excellent reading to-day, and in their time they did much to stir the mind of Europe to a realization of the great peoples in the Far East. It was Polo who gave the name of Cathay to China (probably from Khitan, the name of some early conquerors of China). The name prevailed for centuries, and still lives in poetical usage. It was this same Cathay, of incredible riches, as described by Marco Polo, that Columbus hoped to reach by sailing westward across the Atlantic.

Another grandson, Batu Khan (died *c.* 1255), took over the western conquests and overran eastern Europe much as had Attila, the Hun, some eight centuries before. Just who the Huns were racially it is difficult to determine, but they were undoubtedly a yellow race akin to Mongols and Turks, and the advance of one much resembles the other. There is no more merciless and destructive march in history than that of Batu Khan across eastern Europe. He lived in a gorgeously embroidered silk tent, and therefrom his army was named the Golden Horde. Modern historians consider the word "horde" a misnomer, seeing in these yellow forces organized armies of great tactical effectiveness. Moscow and Kiev in Russia, Cracow in Poland,

Breslau in Silesia, were among the cities burned and put to the sword. Incredible cruelties were practised. In Hungary these new orientals slaughtered their predecessors, the Magyars or Hungarians, now Europeanized, with perfect impartiality. When the empire collapsed, it left a large population of Tatar* blood in eastern Russia. This thrust of the East was halted, though not defeated, in Silesia, never reaching France, as did Attila.

Another typical Asiatic conqueror followed in the latter half of the fourteenth century, Timur of Samarkand (1336–1405), in the heart of Asia. He is commonly known as Tamerlane, from an Anglicization of words meaning Timur the Lame. At the height of his power his sway ran from Asia Minor in the west to northern India in the east. His conquest of Delhi was one of the most thorough massacres of history, all the males to the number of 100,000 being put to the sword, according to one report. His conquests perished with him.

3. THE TURKS

There remains to be mentioned one of the most important consequences of the great Mongolian conquests. That was the movement of the Ottoman Turks, small in itself yet of permanent importance to Asia Minor and Europe. There is no clearer illustration of the fact that in the struggle between peoples the character of the strain—whatever this mysterious phrase points to—is everything and mere numbers nothing. The Ottoman Turks were a small band of nomadic yellow peoples driven out of central Asia by the troops of Genghis Khan. They were called Ottoman after

*In the centuries following the Middle Ages, all these Eastern invaders were indiscriminately called Tatars or Tartars. Tartary was a vague term for northwestern Asia, as Cathay meant eastern Asia. The spelling Tatar is now preferred, and it is used in a narrower sense to designate 3 million Asiatic inhabitants of the Russian Empire, most of whom came in with the Golden Horde. They are of Turkish stock rather than Mongolian.

their first great leader, Othman; after trekking hundreds of miles they settled finally on the highlands of Asia Minor among the Seljuk Turks, of related stock, who had preceded them. They speedily showed their strength by becoming dominant in Asia Minor. Since they have remained so to the present day to the constant turmoil of Europe, it is worth recalling the checkered career of this unique area, best known as Asia Minor, often called by geographers Anatolia.

It projects westward into the Mediterranean like a bridge between Asia and Europe but severed at the western end by the Hellespont and the Bosporus. Its core of bleak mountains and plateaus is bordered west and north by a fertile coast. To the south the Taurus Mountains wall it in and block the road to Syria and Mesopotamia. But one pass exists, the historic Cilician Gates, through which Cyrus and Alexander, and earlier tribes and conquerors without number, have entered the region. This great peninsula, the westernmost thrust of Asia, marks a transition from Europe to Asia. In it grow the trees of the North and the olive and fig of the South; and Eastern blood is so mingled with Western blood that ethnological analysis is a hopeless task. Because it is a main bridge between Europe and Asia no spot on the earth's surface has seen so many waves of immigration and invasion pass over it.

The Hittites, of Old Testament fame, were the first known inhabitants. Their identification is one of the most interesting discoveries of modern archæology. A large number of monuments and inscriptions have now been dug up, indicating that a powerful people ruled here in the days of Moses and Homer. Unfortunately, their language has not yet been translated. The carvings show men with broad heads, sloping foreheads, and hooked noses, not unlike the hill type of Armenian of to-day. It is probable that they were an Eastern people, and, if so, this region entered

historic times as a part of Asia. But northern Indo-Europeans invaded it in the seventh century B. C., and it was completely Hellenized under Alexander the Great. The western coast, with its many islands, had long been regarded as a part of Greece. That a wandering tribe of Gauls settled there in the third century B. C. has been noted. Rome securely attached Asia Minor to the West, but it was won back first by Persian armies and then by the overwhelming tide of Arabian conquest in the eighth century. It has remained Eastern territory ever since largely through the force and vigor of the next conquerors, the Turks. The Seljuk Turks appeared in the eleventh century, the Ottoman Turks in the fourteenth century. The former organized an empire that included Persia, Syria, and Asia Minor, and in Persia achieved a brilliant literature. The great Persian poet and astronomer, Omar Khayyam (died 1123), wrote at this time. Oddly, the Seljuk Empire in Asia Minor was called by Moslems Rum or Rome, a tribute to the time when Rome was supreme there. Such was the medley of names and racial strains in Asia Minor when the small tribe of wandering Ottoman Turks arrived upon the scene. Their rise was gradual but sure. By the middle of the fourteenth century most of Asia Minor was subdued, and the new rulers had gained their first foothold in Europe by the capture of Gallipoli on the Dardanelles. Thence their armies pressed forward into the Balkans. (The conquest of Asia Minor by Tamerlane furnished one brief interruption.) The Byzantine Empire sank lower and lower, and finally, in 1453, Constantinople fell to the Turks and the historic line of the Eastern Roman Empire was ended, with what consequences to the mind of Europe the history of the Renaissance bears witness. The height of Ottoman power was reached in the middle of the sixteenth century; Bulgaria, Serbia, and Hungary were conquered; Turkish armies besieged Vienna. On the Mediterranean

Turkish ships were supreme. Thereafter the tide of battle rolled to and fro; once more, late in the seventeenth century, Turkish guns were trained on Vienna; and the nineteenth century arrived with this Asiatic power still master of most of the Balkans and a source of unending warfare.

As a result of this long Asiatic conquest of southeastern Europe, the peoples beyond the Danube became a racial medley, marking a clear transition between Europe and Asia, and closely resembling the peoples of Asia Minor. The Dardanelles, the Sea of Marmora, and the Bosporus form the geographical boundary between Europe and Asia, but there is no such sharp cleavage of races. From the Danube to the Euphrates, yellow and white races are inextricably mingled. To intensify the confusion was added the clash of religions. The Turks brought no religion with them into Asia Minor. They adopted there the prevailing religion of the country, Mohammedanism. It is a striking fact, paralleling the religious barrenness of the northern peoples of Europe, that neither the Chinese nor the Mongols nor any northern people of Asia developed a powerful religion of their own. (Confucianism and Taoism are philosophies rather than religions.) They adopted the religions of southern Asia—Buddhism and Mohammedanism—precisely as northern Europe adopted yet another religion born in southern Asia, Christianity. Yet, as has been seen, Christianity failed to conquer Asia, and as it travelled westward and northward it took on European forms and character.* It has been argued that Christianity might have swept all Asia had the popes of the late Middle Ages been alert and forceful. There was certainly an

* The Nestorian Church formed the one important early eastward movement. These Asiatic Christians split off from Constantinople in the fifth century and established churches in eastern Syria, Persia, India, and central Asia. Their missionaries penetrated even to China. In the thirteenth century Marco Polo brought back glowing tidings of a great Christian monarch, ruling somewhere in Mongolia, Prester John. The Middle Ages believed firmly in this fabulous Christian king of Asia. Modern research has failed to discover the kernel of fact that probably lies within this picturesque fable.

open-mindedness in China and Mongolia toward all religions at this time, for the excellent reason that there was no fervent faith in any religion to limit tolerance. But it is quite as probable that westernized Christianity did not suit the Eastern point of view as well as Buddhism and Mohammedanism, and that these latter prevailed throughout Asia by reason of their oriental character. At any rate, they did prevail, and the fanaticism of these Turkish Moslems toward the Christians of Asia Minor and the Balkans added the cruelty of massacre to military conquest.

There can be no questioning the vigor of the Ottoman Turks. Always a small minority, swamped in alien blood, they imposed their Asiatic language, their adopted religion, and their will upon the mixed peoples of Asia Minor and the Balkans. They made little progress in civilization; they retained all their nomadic prowess as fighting men. Their conquests endured in striking contrast to the ephemeral triumphs of Genghis Khan and Tamerlane. History has no explanation of such a single tenacious success among the many passing triumphs of the oriental nomads. Remembering the conquests of the Arabs in Spain, one can guess that Mohammedanism was a contributing factor. The quiescent faith of Buddhism prevailed among most of the other Asiatic peoples. But such explanations are mere guesses. The strength of a race of men is as impossible to account for as is the strength of a great individual.

4. THE BORDER PEOPLES

This rise of the East had spent itself so far as Europe was concerned with the fourteenth century. Never again was Europe to be invaded by the Eastern races. But since Europe is a peninsula of Asia, there had been a frequent intermingling of peoples across the artificial dividing line. Border peoples, of mixed Asiatic and European blood, are

the rule in eastern Europe and western Asia. Broadly speaking, and with many exceptions, the transition from broad-headed Mongols to narrow-headed and broad-headed Europeans takes place gradually as one travels from East to West.

The minglings of prehistoric times have already been discussed. They are largely a matter of surmise. Man may have originated in Asia, probably did originate there; in which case all Europe is of Asiatic origin in this remote sense. At a much later date, in late Paleolithic time, the broad-headed Alpine man may have arrived from Asia; and again he may have come from Africa or been developed in Europe. In contrast with these guesses as to prehistoric origins are the certain minglings of historic times when the divergences between Asiatic races and European races were clear.

The six most important of these deposits of Asiatic peoples in Europe are the Huns, the Bulgars, the Magyars, the Finns, the Mongols, and the Turks. The Huns swept clear across Europe in the fifth century A. D., led at the height of their success by Attila. Defeated, they fell back to Russia, leaving but few scattered settlements in western Europe. Their language has not been preserved; from contemporary descriptions they seem to have been typical slant-eyed Mongolians, wild riders and great wanderers, forerunners of the hordes of Genghis Khan. But to what branch of the Mongolian race they belonged, and with what modern peoples of Russia or the Balkans they may have fused, can only be guessed. The Bulgars came out of the East in the seventh century, a particularly forceful and cruel breed of nomad. By the ninth century they had abandoned their Asiatic tongue for a Slavic tongue and were fast becoming absorbed into the peaceful, farming Slavic people of modern times who bear their name. In the ninth century the Magyars or Hungarians overran the

plains of the Danube and spread terror far and wide. (The ogre of the fairy-tales derives his name from "hungar," whom tradition pictured as drinking the blood of children.) They kept their Asiatic language and many of their sturdy racial characteristics, and thereby drove a wedge of Asiatics into the heart of Europe, dividing the western and southern Slavs from the northern and eastern. Racially speaking, the Magyars are the most western of Asiatics. Their kinship with Turks to the south and the Finns to the north has been traced into Asia and is recorded in the three languages, all classed as belonging to the Ural-Altaic family, the name indicating their Asiatic origin. Finnish and Magyar are more closely related to each other than either to Turkish. The Finns came West in great numbers at an early date, spreading over most of Russia. They were neither horsemen nor conquerors, and in most regions they have been fused with other peoples. In Finland, where they fused with Scandinavians, they preserved both their language and many oriental characteristics, including the extremely broad heads of the Mongolian race. The arrival of the Turks in the eleventh and fourteenth centuries has already been described. Their language shows a clear relationship with the tongues of Magyar and Finn. Their blood is a strong element in Asia Minor and in the Balkans, including Greece.

To complete the picture, there are the infusions of north African blood in Sicily and southern Italy and of both Arab and north African in Spain. Ethnologists are now inclined to group the north African dark whites with the other Mediterranean peoples, so that this element is more European than African save as fused with negro blood. North Africa can perhaps best be considered a region of border peoples, standing between Africa and Europe precisely as the peoples in eastern Europe unite Asia and Europe.

5. INDIA

This chapter began with China and has travelled westward, following the major thrusts of Asiatic influence upon Europe. It will now be necessary to return to the Far East, record the history of another great Eastern power, India, and then pursue the course of Asiatic influence eastward across the Pacific to America.

The later story of India is one of almost continuous invasion by alien powers and of increasing disunity. Various waves of barbarian nomads from central Asia swept into India in the early centuries of the Christian era precisely as Attila rode across Europe. This was plainly a period of movement and unrest in Asia, but the history of that great region is still ill defined. The remains of Hellenic civilization in India were overwhelmed by these wild riders. Of them the White Huns or Ephthalites, who arrived in the sixth century, deserve separate mention for their incredible cruelty. The raids of these nomads destroyed and disorganized; they set up no lasting rule.

Seven centuries of conquest of a far different type, by Mohammedan peoples, from 1000 to 1750, followed. Thereafter came European subjection, which has continued down to the present. Turks, Afghans, and Tatars (from the heart of Asia) were the Islamites who succeeded one another in the rule of India. They were far more advanced in civilization than were the barbarian nomads who preceded them, and their sway had lasting effects. For one consequence it created many Mohammedan believers in India, who have continued faithful to Allah and form a strong minority in India to this day.

Among the adventurous rulers of the Tatar or Mogul * period, Akbar (1542–1605) ranks as a great and liberal monarch. This contemporary of Queen Elizabeth brought

* "Mogul" is simply "Mongol" transferred into Arabic and back into English.

a magnificent age to India. He attempted many enlightened reforms, even opposing the sacred practice of suttee, the self-immolation of a Hindu widow upon the funeral pyre of her husband. But his effort to reconcile Hindu and Mohammedan was a failure and India reverted to her old internal dissensions. Just as Asoka's rule had dissolved into chaos, so the reign of Akbar left little but a tradition of unity. India entered modern times an incoherent mass of petty states and antagonistic races, less able than even China to resist conquest, and possessing only faint traces of that strong sense of unity which underlay Chinese civilization.

Already the overseas adventurers from Europe were opening up the Far East to Western commerce. First came the Portuguese, then Dutch, Danes, Spaniards, French, and British. The final conquest of India by the British belongs in modern times. It was preceded in the eighteenth century by a disintegration of the Mogul Empire which foretold the end of its domination.

As in the case of China, the material for a thorough study of India remains to be gathered. A magnificent and often exquisite architecture, and religious devotees, masters of a contemplative faith of great philosophical power, are among the obvious signs of Indian greatness. The labor of historical analysis has scarcely begun and detailed understanding of Indian institutions is still in the future.

6. THE ISLANDS OF THE PACIFIC

The Atlantic Ocean was a true abyss separating the Eastern and Western hemispheres throughout the formative ages of mankind. (One possible exception may be noted; early Europeans may conceivably have crossed to America upon a land bridge binding Norway to Greenland in Tertiary time. But confirmation is lacking.) The Pacific Ocean offered, by contrast, a friendly, easy route from

west to east, strewn with islands, and aided by favoring winds and currents setting straight toward the American coast. In historic times Chinese junks blown out to sea have frequently been carried across the Pacific to America. It is clear that prehistoric Asiatic man spread slowly across the Pacific, from island to island, and it is a likely hypothesis that he ultimately reached the South American coast. In addition, there was formerly a land bridge where now is Bering Strait, and there is strong evidence that the first Americans came from Asia by this route at a very early date. Therefore, good reason exists for regarding America (before 1492) as the real Orient of the world. In sailing westward to the Americas Columbus brought the high civilization of western Europe face to face with a backward branch of Asiatic peoples who had wandered across a great ocean and a great continent to the Orient's farthest east.

The gradual drift of Asiatic peoples eastward across the Pacific is still far from understood. Yet certain broad divisions of Oceanica have been outlined, as the newer nomenclature partly indicates. In the west, Malaysia or the East Indian archipelago runs from Sumatra to the Philippines. In the east, Polynesia includes such groups as the Samoan and Hawaiian Islands and all the sparse spots of land that form stepping-stones to South America. The small, widely scattered northern islands have been named Micronesia. The larger islands to the south, including New Guinea or Papua, and extending eastward to the Fiji Islands, are called Melanesia, from the blackness of many of their inhabitants. Australasia, which is commonly used to include Australia, New Zealand, and Tasmania, is a geographical and political unit without racial meaning.

The racial strains are greatly mixed in the Pacific islands and no clear account of their origins is possible. The natives of Australia present a great puzzle. Ranking among the most primitive of peoples, they show physical resem-

blances to both Negroid and Caucasian types. They have been frequently classed as a separate race of mankind. In Tasmania, to the south of Australia, the natives, now extinct, resembled the Papuans of New Guinea. Since Tasmania was once united with Australia, a possible explanation would bring these natives to Tasmania by this land route. In New Zealand, as might be expected from its situation, the native Maoris are Polynesian.

It seems probable that the black peoples, large and small, who spread over Africa in early times, also found their way along the land bridges of the Malay archipelago to the Philippines, New Guinea, and Australia—roughly, throughout Melanesia. The origin and the racial affinities of the two brown races of the Pacific are much more doubtful. They are the Malayan and the Polynesian. Formerly, anthropologists regarded the former as clearly Mongoloid, the latter as probably having Caucasian affinities. Later theories range over a wide field, but tend to reduce the Mongolian element in the Malay and suggest the possibility of a remote common origin for Malay and Polynesian in southern Asia. The whole problem forms one more racial mystery which has thus far defied solution. It is fairly well established that the final drift of Polynesians to the eastern Pacific occurred in recent times, probably in the two millennia lying on either side of the birth of Christ.

The islands of Japan show, as might be expected, Mongolian types, closely related to those of China, with a large later admixture of Malayan blood. In addition, the hairy Ainus appear to be a surviving remnant of ancient Caucasian stock.

7. AMERICA

It must be clearly understood that the origin of the American Indian is highly speculative. For this reason some anthropologists have preferred to treat him as belonging to a

separate race and the name Amerind has been coined to describe him. But the probabilities based on physical traits, especially his straight hair, and the absence of ancient skulls which would suggest an American origin, link the aboriginal Indian with the Mongolian stock of Asia, and his people may be hypothetically regarded as a branch of that race. If so, his ancestors came from Asia, probably by the land bridge across Bering Strait, at a far distant date, and the common stock in Asia was not any present Mongolian type but remote forebears.

Certainly the great variety of physical type of the American Indian suggests a long habitation in the widely various climates of the two continents. The types and tribes and languages are so numerous as to make classification exceedingly difficult. The high cheek-bones and the hawk's nose are among the few constant characteristics. The color ranges from copper to black, the height and the heads from long to short. Nearly 200 families of languages are known, which include over 1,000 dialects. They are in general holophrastic. The level of the culture achieved when Europeans arrived upon the scene varied as widely. The North American Indian was largely in the Old Stone Age, as his chipped arrow-heads testify. Yet in Peru, in Mexico, and in Central America, especially in the Yucatan peninsula, a civilization was achieved which is to be ranked with that of Egypt in many respects, though following it in point of time by several thousand years.

The true antiquity of these old American cultures is a recent discovery and much remains to be established. The work to be done in exploring the archæological remains of Central America is the most important of the present day. Enough has been found to awaken the theory that some fresh inspiration from Asia set this advance in motion. It is a convenient hypothesis that long after the original Mongoloids crossed Bering Strait and spread over the two continents, perhaps only 1,000 years B. C., a fresh impulse

reached South America, canoe-loads of Polynesians carried eastward by wind and current. There may have been few of them and their knowledge of Asiatic civilizations may have been vague. But the thrust was given and all the highest civilizations of the Americas, from Peru to Yucatan, may be derived from these chance visitors. Here is only an hypothesis, however, and, along with the whole theory of Asiatic origin, it must be viewed with every caution. There are even experts who argue that the influence was in a reverse direction, that man originated in America and worked westward. The situation clearly calls for an open mind and a realization of the extremely tentative character of the most plausible theories.

The story of the Incas of Peru is familiar. Here the Spaniards of the sixteenth century found an extremely individual and vital civilization. If nothing remained but the marvellous stone-cutting of their buildings, the achievement would be memorable. In fact, they had an efficient government, a state worship, post-roads, and a rare skill in pottery and metals. Unfortunately they did not invent a writing—their only records were numerical, which they kept by means of knotted strings called "quipus." Their progress was cruelly ended by Pizarro.

This earlier achievement has now been surpassed by the revelations in the recent discoveries in Central America. A tentative statement of these new facts may be attempted, though much revision may prove necessary. These greatest of aboriginal Americans, the Mayans, appear to have achieved a high civilization in the Yucatan peninsula in the millennium preceding the Christian era. They wrote with hieroglyphs, they used a system of numerals—bars and dots—and they possessed an extraordinary amount of astronomical knowledge. The earliest recorded date in Mayan history has been placed at 613 B. C., on the basis of astronomical facts. If these calculations are confirmed, some unknown Mayan scientist used arithmetical devices

and measured certain astronomical phenomena before any one in the Old World. The outline of this great civilization is fairly clear. It reached its most brilliant period, the First Empire, from 400 to 600 A. D. Then it experienced a strange decay and great cities were abandoned to the forest for reasons as yet unknown. Yellow fever or civil war may have ruined the Mayans; or climatic changes may have forced them to higher ground. Their next success was their Second Empire, about 960 A. D. Thereafter the Toltecs from Mexico conquered them and the Mayan story ended. A secondary culture followed, extending from Mexico through Honduras to Costa Rica, derived from the glories of Yucatan. The Toltec civilization was high, as its beautiful pottery and its skilful work in gold, silver, copper, and various alloys indicate. To complete the Mexican picture, the Toltecs were followed by the Aztecs, who held much of the table-land of Mexico when the Spaniards arrived.

Repeated efforts have been made to connect the American civilization directly with Asia. One conspicuous fact of the Mayan architecture was its fondness for pyramids. In Peru there are megaliths. An English anthropologist, Elliot Smith, has attempted to unite these great stories in a "heliolithic" or "sun-stone" culture extending around the world, and would see a common cultural origin for Stonehenge in England and the megaliths of Peru. It was at one time thought that elephants were depicted in Mayan carving, but this view has been discarded. An impartial view at the present time would treat the unity of the megalithic culture as unproven and see in the culture of Central America many highly original features which suggest that the appearance of pyramids resembling Egyptian structures, for example, was mere coincidence. All the resemblances between these early cultures may be regarded as the result of parallel forces operating under similar primitive conditions.

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CHAPTER XIX

THE RENAISSANCE

THE Middle Ages have been misunderstood and gravely underestimated in modern times—save for the vague and inaccurate eulogies of the nineteenth-century romanticists from Sir Walter Scott to Victor Hugo. The Renaissance has been correspondingly overpraised or, rather, mispraised. Its name is doubly misleading. It implies that an older civilization was reborn into the world, a miracle that could not and did not happen. That there was a birth, at all, in the sense of a sudden beginning, is an equal misdescription. It was preceded by the great and pulsing era that built the Gothic cathedrals, an age of youth and swift growth, clearly the product of the times. The Renaissance

was equally an evolution from the centuries that immediately preceded it, save that it drew one additional source of inspiration across 2,000 years of time.

The Middle Ages had passed their peak and were declining by 1300. The fourteenth century and the first half of the fifteenth century are a clear example of a transition period; these years can be classed either with what had gone before or with what followed, containing elements of both. What produces such a rise and fall of an era of civilization and how seed germinate in the fallow ground of a century like the fourteenth belong with the other many unsolved problems of history. Seed-time, plant, flower, and decay furnish a rough and suggestive simile for the cycle, but no analysis or explanation. What is clear is that even in this transition period, blasted and handicapped in France and England by the Hundred Years' War, there were great forces stirring. To mention a few names in literature is to show what vigorous life breathed the waiting air. Petrarch and Boccaccio in Italy, Villon in France, Chaucer in England, belong in this period; all of the fourteenth century save Villon, who died about 1463. For the arts, in which the Renaissance was to be peculiarly triumphant, there were the Italian Giotto, at the beginning of the period, and the Flemish Van Eycks at the end. It is difficult to escape the belief that here were the beginnings of another great upthrust of Nature that must have come to flower even though the particular movement that gave the Renaissance some of its peculiar characteristics had never happened.

That movement was the rediscovery of the ancient world, usually called the Revival of Learning.

Other events quickened the stream or altered its course. Among them were:

The Reformation, or Protestant Revolt, and the Counter-Reformation.

The discovery of the new world—the Americas.
The triumph of nationalism under absolute monarchy.
The slow beginnings of modern science.
Three great inventions:
  The mariner's compass.
  Gunpowder.
  Paper and printing from movable type.

The origin of the compass is obscure. The belief that the Chinese knew of its properties centuries B. C. is now doubted. Certainly they never used it to become offshore mariners. The Arabs may have known of it. But its development into a useful and reliable instrument of navigation was the work of Western peoples, probably Italians or Scandinavians, from the thirteenth to the fifteenth centuries. It is difficult to see how the great voyages of discovery could have been sailed without it. Here is a clear case of great human events waiting upon the invention of a tiny piece of apparatus, a bobbing needle in a box. But for it the whole development of America might have been long delayed and wholly different.

Gunpowder was an old story as an explosive in fireworks. The Chinese used it thus in the sixth century. Roger Bacon studied it in the thirteenth. Who first thought of using it to propel a missile from a gun-barrel is not known. The invention dates from the fourteenth century, and by 1500 cannon were so far developed that all the old machinery of warfare was passing, bows and arrows, lances, armor; most important of all, walled castles. Here the new invention influenced history. The mediæval system centred around the feudal castle and the walled town. The protection that their stones afforded was an essential item in the feudal organization. When walls became useless to withstand armies, the downfall of feudalism, already approaching, was hastened and assured. Gunpowder also

aided the rise of the national rulers into full sway. As an even farther-reaching effect, gunpowder, by industrializing war and giving the advantage to the settled peoples, with towns and factories, ended the chances of the nomads for all time. No Genghis Khan could sweep over Europe after 1500. The American Indian stood no chance against the colonists. The Eastern nations could meet the West in equal battle only by copying the industrialization of the West, as did Japan.

The invention of paper and printing from movable type probably deserves to be ranked as the most important since the invention of the alphabet by the Egyptians. For good or ill our whole modern civilization is built upon printed books. Yet it is necessary to distinguish between what printing did and did not do. The Greeks knew nothing of printing. They had only manuscripts, copied painfully by hand upon papyrus. Yet they wrote some of the greatest pieces of literature, they created a great architecture and sculpture, and they developed an extraordinary number of fine minds, some of them probably as great as any that the world has ever seen. Plainly, printing was not essential to genius or an intellectual aristocracy. The high achievements of the Middle Ages were equally without benefit of printing. The flowering of religious faith and the great cathedrals that it produced were not aided by printed books. Neither were the legal system and the empire of Rome. Literature, art, intellectual power, religious faith, organization—what was left for printing to foster? Democracy, in respect to government and to the mind, and science are two clear answers. The former would have been impossible, the latter long delayed without the vastly improved means of communication which printing affords. Neither was the product of the Renaissance, however; the world waited till the eighteenth century for their rise. It is accurate to think of printing as the basic step in that

speeding up of human intercourse, with respect to ideas as well as to transport of cargoes, which has been so enormously accelerated in recent years with the arrival of steamships, railroads, telegraph, telephone, flying, and radio. The effects of this bettered communication upon the mind of the world will be discussed in connection with the last two centuries. Since modern invention rests upon modern science, and modern science would have been postponed without the swift interchange of ideas by means of print, it can be seen how fundamental the use of movable type was to the cause of civilization. The immediate effects upon the Renaissance were general rather than specific—to spread civilization more rapidly and stimulate a larger number of minds than had perhaps ever been intellectually excited before.

It is sometimes asserted that printing freed the human spirit by making it possible for every man to do his own thinking. The individualism of belief which followed tardily in the wake of the Protestant Revolt has been cited in support of this opinion. It seems a highly optimistic view of the actual results. Faith in the printed word has in many minds succeeded faith in individual authority. Free minds are still rare, as the story of modern times will make clear. The point is relevant here because, after the great and original outburst of genius that marked the literary Renaissance, the movement relapsed into a frigid classicism that leaned too heavily on Greek and Roman leadership. Faith in the letter of the classics succeeded fresh and original thought. Printing that helped spread the movement helped set up this faith in the printed word.

Freedom of thought burned brightly in Greece without printing to aid. It was extinguished in the Dark Ages, relit during the Renaissance, and again in the last two centuries. It is to be thought of as a condition rarely achieved by many in any period, and maintained in modern times by courage and imagination rather than by any machine.

Whether a great invention is summoned by necessity or creates the era that it serves has been often debated. Like most of the broad questions that history raises, no answer is possible. Yet it can fairly be argued of the invention of printing that the need preceded the event. Europe was eager for texts of the new learning when Gutenberg printed his first page from movable types at Mayence, in Germany, about 1450. William Caxton followed in London in 1474, the famous Aldine Press in Venice dates from 1494 and the Plantin house in Antwerp from 1549. By 1500 thousands of books had been printed.

Paper was as essential to the making of many books as movable types. The ancient world—Egyptians, Greeks, and Romans—used papyrus. The Middle Ages used parchment made from the skins of goats and lambs. Paper was another contribution of the Arabs to Europe. The Chinese had made paper several centuries B. C. In the eighth century A. D., at the height of Arabian power, several Chinese paper-makers were captured in Samarkand. The Arabs put the invention to work, and the Moors introduced it into Spain in the twelfth century. Paper was common in Europe by the fourteenth century, thus antedating printing.

Amid all these rich and stirring events, it was the fresh contact with ancient Rome and Greece that gave the period much of its distinctive character; that, in varying degree, and least of all in Germany, determined within what banks the stream would run. As with all human development, no precise limits of time can be assigned. The years from 1400 to 1650 roughly include the northward course of its wave, from Italy to England. The classic revival naturally enough began in Italy, which received the least Teutonic blood and possessed the most direct inheritance of Greco-Roman tradition. Gothic architecture, for one symptom, never found a secure foothold in Italy. The Renaissance

ran its course in Italy from 1400 to 1600. It reached France around 1450 and was declining there by 1650. The dates of the English Renaissance run yet later. The case of Germany was peculiar. The influence of Greece and Rome was least felt in those northern countries that, unlike England, had little admixture of Mediterranean peoples or civilization. The Renaissance, in the broad sense of the term, deeply stirred Germany; the Revival of Learning with its classic influences was of limited effect.

The coming of the Barbarians interrupted the progress of European civilization for 700 years. The Middle Ages marked the resumption of progress and the appearance of a fresh civilization, neither Roman nor Teutonic but European, a fusion of the two plus Christianity. It involved a recapture of part of the Greek and Roman tradition; Aristotle, in the translations in which he was known, was the Bible of the schoolmen. The Renaissance went farther and recaptured the whole of the antique world, its philosophy, its poetry, its art. The result naturally was to increase the classic element in European civilization. Yet in the great years of the Renaissance there was more than slavish imitation of antique examples. There was a new flowering of European civilization, in art and thought, this time incorporating the whole mighty stream of Western tradition from Homer forward. With the Renaissance the unity of the Western story, broken by the Dark Ages, was completely restored. After the mighty forces of the period were spent, lesser men did devote themselves to copying Greece and Rome, with frigidly classical results. The great years were as utterly fresh and original as any thirteenth-century Gothic cathedral.

We are approaching one of the greatly disputed battlegrounds of history. The quarrel reaches its height with the Reformation; it begins with the Renaissance, which reintroduced paganism to Europe, and thereby placed Chris-

tianity in issue. It is exceedingly difficult to maintain an impartial calm amid such heavy cannonading. Therefore it will perhaps be useful to set down one agreed fact at the outset; that is, the extraordinary richness of the period in great deeds and great men. Almost was there an explosion of human achievement in the high years of the Renaissance. In the following sketch of the movement by nations, the difficulty will be to limit the individuals to be mentioned. Whether the lasting effects of the Renaissance were predominantly good or evil, it ranks in richness of genius with the greatest periods of western Europe—with Greece in the fifth and fourth centuries B. C., with Rome from 100 B. C. to 100 A. D., with the twelfth and thirteenth centuries of the Middle Ages, and with the eighteenth and nineteenth centuries of modern times.

These achievements were far from uniform across Europe. The diversity already distinguishing the newly formed nations of Europe was well illustrated in the various intellectual courses of the Renaissance in the several nations.

Italy, after leading in the study of the classics, contributed less to literature or philosophy. Her mastery came in the arts of the eye—in painting, sculpture, architecture, and craftsmanship in smaller objects, silverware, jewelry, etc. Politically, the Renaissance brought Italy tyranny, disaster, and foreign captivity. Morally, Italy touched the poles of nobility and vice.

Germany contributed the invention of printing, a few great artists, and the leadership in the Protestant Revolt.

Spain excelled in painting, in prose satire, in drama. Her discoverers and those of Portugal led the world westward. For a whole century Spain was the most powerful nation of Europe.

The Low Countries (now Belgium and Holland) produced some of the greatest art of the Renaissance, and in

the birth of Protestant Holland the pioneer of free nations.

France wrote the greatest prose of the Renaissance, expressing the sanest philosophy of life, built the most beautiful châteaux, and furnished an adventurous breed of explorers in the New World.

England was weak in the visual arts, rich in philosophy and the forerunners of science, and supreme in poetry and the drama. Her great captains won the seas from Spain.

All the nations contributed to create the new art of music. Rhythm and melody had been among the oldest arts of primitive man. The Greeks sang in octaves. Beginning slowly in the Middle Ages, now developing rapidly in the Renaissance, music achieved the harmony of many intervals and gave man a new speech. Religion, the dance, and folk-song were, as of old, its chief sources of inspiration. The Italian Palestrina (1526–1594) and the German Bach (J. S.) (1685–1750) stand as its supreme masters in this formative period, the years of the latter bridging the transition from Renaissance to the present era.

The Renaissance saw the breakdown of feudalism. Local rights surrendered to the absolutism of an autocratic ruler. Save in Germany and Italy, the decentralized confusion of feudalism was succeeded by a highly centralized monarchy.

I. ITALY AND THE REVIVAL OF LEARNING

The story of the Renaissance in Italy is not single. It is as varied as the many rich and independent cities into which her territory was split. If the outstanding characteristic of Europe was to be its division into independent nations, that tendency was already carried to an extreme of local loyalty within the borders of Italy. This particularism caused the political downfall of Italy as a nation; it gave richness and a stimulating variety to the colors of its mind and art. It was in small, independent cities, little larger than ancient

Athens, that the Renaissance first and most richly bloomed.

Of the forerunners, Petrarch (1304–1374) stands out by reason of his pioneer interest in the classics that anticipated the Revival of Learning. He was a collector of Latin manuscripts, a passionate admirer of Cicero and Vergil. He is one of many that have been called "the first modern man," and to none has the term been applied more justly. Only a portion of Cicero was before him; the "Iliad" he knew only in a Latin translation that his dearest friend, Boccaccio (1313–1375), the enchanting tale-teller, author of the "Decameron," made for him. He worshipped these pagan writers and, like many others in the early Renaissance, was not the less loyal to Christianity. He stood between Saint Augustine and Vergil, he once remarked. His odes and sonnets to his beloved Laura are his most famous work, chivalrous love poetry written in the maturing Italian tongue and never surpassed for sheer perfection of form.

Zest for the classics grew apace. By 1400 Greek scholars were entering Italy from Constantinople. The search for manuscripts became the chief concern of learned men. When Constantinople fell to the Turks in 1453, a small army of scholars with their texts fled westward. It is hard to suggest a modern parallel to the excitement, the passionate interest, which the discovery of these old authors brought to Italy. Modern unearthing of mummies and inscriptions offers a pale comparison. For here were not mere historical data but the greatest works of the human mind. It was very much as if Homer, Euripides, Plato, Lucretius, and Cicero were alive to-day and contributing to the press the classics that bear their names.

Florence

For a parallel to Florence in the Renaissance one must turn back to Athens in its great years. Here was another

small city pulsing with every artistic energy, gay with color and song, thinking greatly, deeply moved by religion. As with Athens, warfare was frequent, against rival Italian cities, against foreign invaders. As with Athens, too, there has rarely been a worse-governed spot, despot succeeding republic and siege following plague. Through all this turmoil this small city on the banks of the Arno in a century and a half raised buildings and carved statues and painted pictures that make it still, after three centuries, one of the great art centres of the world.

The Medici were the rulers of Florence in its greatest years, including the tall figures of Cosimo (1389–1464) and his grandson, Lorenzo the Magnificent (1449–1492). The former marked the peak of the Italian Renaissance, when for a moment it seemed as though Christianity and paganism could strike hands in a new civilization of greater glory than any that had gone before. The latter witnessed the decline toward license and a corrupt materialism. Lorenzo died in 1492, the year that Columbus discovered America. It is hard to find a parallel to these princely democrats of Florence, learned and splendid, generous and cruel, sensuous and pious. One feels in their contradictory traits the forces of two great movements at war and knows that their type could not endure. "Thou hast conquered, O pale Galilean," wrote Lorenzo in a play about Julian the Apostate. Tradition placed the words in the Roman emperor's mouth, but they might well have expressed a Medici's realization of the doom of paganism.

At the other pole of life stood Macchiavelli (1469–1527), pagan and cynic, who built a philosophy around the ideal of absolute rule by a strong state. Accepting this goal as the best system of government, he defended every means to achieve it, whether vice, crime, or cruelty. He devised a system of lawlessness, of falsehood, of ruthlessness. His famous book, "The Prince," was the Bible of

the absolutism that followed the Renaissance down through the eighteenth century. Catherine de Medici was the perfect flower. Its principles lived on in the aims and methods of Napoleon and Bismarck.

It was amid the growing vice and cruelty of Florence in Lorenzo's later years that the gaunt priest Savonarola (1452–1498) preached and ruled and was put to death. He succeeded in sweeping all before him with his eloquence, and became a benevolent despot. He imposed a rigid Puritanism on the city, and denounced Pope Alexander VI for his evil life that brought the papacy to its darkest hours. After a few years his people, weary of restraint, turned on him and, backed by the Pope, seized and condemned him.

Of the artists who ennobled Florence, Donatello, the sculptor of youth, and Botticelli, the painter of pure beauty, are the best-known of a line that culminated in Leonardo da Vinci (1452–1519), one of the greatest of men. The art works of this stupendous genius that have survived are few —"The Last Supper" at Milan and the "Mona Lisa" of the Louvre are familiar to every one. His drawings rank with the greatest work of pen and pencil. He was not less a student of nature, a true scientist, in the modern sense. A century before Bacon he used the experimental method which has made modern science possible. To mathematics, astronomy, physics, geology, and anatomy he gave devoted study. His name enters into the history of countless scientific topics from capillary attraction to flying-machines. He is to be ranked as a great pioneer of modern science. He travelled much, passing many years of his life at Milan and dying in France, whither he went under the patronage of Francis I. Artist and scientist, he was as well an engineer of ability, musician, poet, and philosopher. Strong, handsome, and kind—he could break a horseshoe with his hands and would buy caged birds to set them free—he stands as perhaps the most complete man of all time.

Rome

As the seat of the papacy, Rome was a world-city, seething and corruptive. The Renaissance flowered swiftly and decay arrived apace. The decline of the papacy in spiritual leadership kept step with the general vice. Alexander VI was the worst of a number of Renaissance popes. The temporary failure of Christianity before paganism was nowhere so clear as at Rome.

This strange city could be the home of two such opposite creatures as Benvenuto Cellini and Michael Angelo. Both belong to the latter half of the Renaissance, after 1500. Cellini lives in his memoirs, the candid confessions of a great rascal. He was a fine craftsman in small works of beauty, a typical product of an artistic movement passed beyond its peak, elegant and ingenious. But it is for his book, with its naïve bragging and swift sword-thrust, that he lives immortal, for all its lies the best contemporary picture of the Renaissance.

If Michael Angelo (1475–1564) was not the equal of da Vinci in sheer intellect, he was his equal in nobility of character, and far surpassed him in vigor of artistic output. No time has produced a purer soul, and the fact cannot be brushed aside. There were plainly great and noble forces in an age that could count two such characters. Michael Angelo was first of all a sculptor, but his decorations of the Sistine Chapel, the ceiling in particular, rank with his greatest work. In the originality and wild grandeur of his conceptions, and especially in their expression of the soul's tragic conflict, he had passed beyond classical influence, and one feels him unmistakably the first of the moderns.

The list of great names seems endless. Each of the cities had its peculiar quality, its great family with its own virtues and vices, its great artists, unique in character. Milan was the home of the Sforza family, perhaps the most cruel

rulers in Italy. Venice, a great sea-power, pleasure-loving and pagan, gave birth to a glorious group of painters, supreme in color, including Titian, Tintoretto, Giorgione, Veronese, all of the first rank. Much could be written of the women of the Italian Renaissance—educated with their brothers, beautiful and, like their brothers, often unmoral. Beatrice d'Este and Isabella d'Este, sisters of the house of Ferrara, were types of the fine and high-minded; Lucrezia Borgia, daughter of Pope Alexander VI, of the more corrupt. Courts were never so intellectual and graceful as in these small Italian cities of the Renaissance. Castiglione's "Courtier" gives a memorable picture of them: of the gentleman, cultured but natural in manner and in speech, and the lady, trained to be his companion. It is, perhaps, the first book since antiquity to uphold the rights of women to development, and the fact accurately records the conspicuous position of the aristocratic women of Italy.

By 1550 the Renaissance had ceased to advance in Italy. It had brought disunion and demoralization in its wake, and the price to be paid was three centuries of invasion and subjection. Intellectually the pioneers of Europe, the Italians fell, politically, to the rear. Charles VIII and Louis XII of France were the first invaders; Charles V of Spain followed and placed the whole peninsula in servitude; and until Napoleon arrived in 1796, Italy was for the most part partitioned between Spain, Austria, and the papacy.

2. GERMANY AND THE REFORMATION

The great contribution of Germany to this period was in the Reformation, more accurately termed the Protestant Revolt, and though other nations aided, it is convenient to trace the rise of the movement in relation to the story of Germany which gave it birth. It is simple to relate the superficial events of the Reformation. Some of its causes are obvious, too. Yet it is extremely difficult to assign due

weight to these causes, and even harder to agree on the gains and losses to Western civilization that resulted. The fanaticism of the period still colors, though in subdued tones, the minds of historians and readers alike. Some progress has been made toward an impartial revaluation. Much remains to be done. All history is to be read with a realization that its generalizations are expert guesses rather than scientific facts. This particular section covers a battle-ground in a war that is still being waged, and the smoke of partisanship still prevents either accurate observation or impartial judgments upon which guesses may be based.

One obvious cause of the Reformation, much stressed in earlier histories, was the corruption of the Church and the weakened prestige of the papacy owing to the "Babylonish captivity" of the popes in France at Avignon and the consequent "Great Schism" lasting forty years (1378–1417), during which there were first two, then three rival popes —one a Frenchman at Avignon, the others Italians in Italy. Protestant writers long regarded this corruption as the main source of the Reformation. Current research tends to minimize this cause and to stress other elements as more important.

Similarly with Humanism and the Revival of Learning. Their relation to the Protestant Revolt has also been exaggerated, and as will be seen in the case of the greatest of Humanists, Erasmus, the "new learning" did little to fire men to religious schism. The rediscovery of the classics and the diffusion of books through the printing-press fostered the Reformation, chiefly by ending the monopoly of learning which the clergy had theretofore possessed and placing the Bible and other books in a wider circle of readers. Humanism contributed nothing of Greek rationalism to the course of the Reformation, and one must guard against transporting later ideas into this early Protestant-

ism. The extreme conservatism of Protestant fundamentalists of to-day is the true child of Luther and Calvin.

Of the underlying causes of the Reformation, the greatest stress is now laid by most historians upon political forces. In some cases these were personal and dynastic. More fundamental, and the central fact of the Reformation in this view, was the inevitable and general clash between the emerging nations of Europe and the secular powers of the Church. It is to be remembered that the Church was an international state, of which every one was a member. It laid and collected taxes, it enacted laws and enforced them with its own courts. Its secular powers necessarily collided with the growing independence of the nations, and created an irritation and restlessness that made revolt against Rome on any ground welcome. It needs to be continually recalled that the whole course of the Reformation, its success in some countries, its failure in others, was inextricably involved in these political considerations. Broadly speaking, the rulers of the northern countries—Germany (including the Netherlands), England, and, to a considerable extent, France—had long shown an impatience toward papal officials, papal taxation, and papal independence of secular authority. The quarrel between the emperor of the Holy Roman Empire and the Pope was perennial. In England various laws were passed curbing the powers of the Church, notably the statutes of Mortmain, designed to limit the holding of landed estates in perpetuity by the "dead hand" of the Church.

There were also spiritual and intellectual issues of great importance. Especially in these same northern countries the fourteenth and fifteenth centuries showed religious tendencies at odds with papal authority. An Englishman, John Wycliffe (*c.* 1320–1384), was the pioneer of this movement. He has been called the Morning Star of the Reformation, and his career accurately forecast the main

features of that movement. A cleric and a lecturer at Oxford, his first writings were an ecclesiastical defense of the action of the British Parliament in refusing the tribute demanded by the Pope. Thereby he showed his sympathy with the rising tide of nationalism and its natural opposition to Roman interference. He soon broadened his attack so as to anticipate the essentials of Protestantism as it developed two centuries later. Especially, he insisted upon the Christian's ability to look direct to God without the mediation of any priest. He attacked the Pope and the friars, and upheld the Bible as the supreme authority for every Christian. To bring the Bible into general use, he translated it, with the aid of several friends, into English. Therefore he ranks as the founder of English prose.

His efforts failed in England. His doctrines were taken up by a sect known as the Lollards, and for a time flourished, largely among the poorer classes. But a peasants' revolt against the poverty of the times alarmed the authorities, and the heresy was suppressed. In Bohemia, however, whither travelling scholars had carried the faith, it became a powerful national religion through the leadership of John Huss. For these heresies this reformer was burned at the stake. But his popularization of the doctrines of Wycliffe lived on in Europe.

A word should also be said, to prevent misconception, of the rise of the German mystics. The central fact of mysticism is direct communion with God, mounting to a sense of ecstatic union with him. There has always been much mysticism within the Christian Church. Saint Francis of Assisi was a great mystic before the Reformation. There were great mystics within the Church after the Reformation. Mysticism is neither Protestant nor Roman Catholic. But Germany was a particularly fruitful field for mysticism, and its leaders developed a spiritual intensity among their followers that probably aided the reform spirit

when it arrived. To moderns Thomas à Kempis (*c.* 1380–1471) is the best known of these German mystics through his "Imitation of Christ," * that has probably had a wider religious influence in Christendom than any other book save the Bible. He was a devout Catholic, of simple faith, utterly untouched by heresy.

One other great forerunner in the field of spiritual and intellectual revolt remains to be described—Erasmus (1466–1536), born a Dutchman, long a resident of other countries, and the foremost man of letters of the period. He has been called "the Voltaire of the Renaissance," and his incessant mental activity, his countless letters, and his free play of mind, point the resemblance. It was a saying of the time that "Erasmus laid the egg and Luther hatched it." But he had not the slightest sympathy with the revolt when it came. Ordained a priest, he was a man of learning above all else, and he disliked fanaticism on any side. He was not greatly interested in dogma, and could see nothing to be gained by attacking the Church or its theology. He did attack with bitter satire the abuses of the time, the corruption of the clergy, especially the monks, and the formalism of religion. But he hoped confidently for reform within the Church by the slow processes of education. When violent fanaticism appeared in the Reformation, he exclaimed that bishops and popes had been exchanged for madmen. His profile is familiar in the Holbein portrait, and his spirit lives therein, sensitive, wise, and charming.

Such were the forces, political and spiritual, which were struggling for expression when Martin Luther (1483–1546), in 1517, nailed his theses on the church door at Wittenberg. A Dominican monk, Tetzel, was the occasion of the outburst. He had been granting indulgences in the name of the Pope in order to rebuild St. Peter's at Rome.

* The long controversy over the authorship of "The Imitation of Christ," one of the most celebrated disputes of literature, has ended with all the probabilities favoring Thomas à Kempis.

These were pardons relieving a contrite sinner from all or part of his suffering in purgatory. They seemed to Luther, influenced by the teachings of Wycliffe and Erasmus, an outrageous example of religious formalism. In his propositions, or theses, Luther asserted what may be regarded as the central tenet of Protestant belief, that faith in God, not the purchase of pardons, or even good works, procured the forgiveness of sins. Luther was a monk and his theses were written in Latin, but they were speedily translated into German and read far and wide. Here was a very different type from the scholar Erasmus. Luther was a man of action, fired by a violent nature. Within a few years he broadened his attack to include cardinals and popes, and in a popular pamphlet called upon the German nobility to reform the Church, since there appeared to be no hope in the Pope. Luther availed himself of the economic and political antagonism to Rome by remarking upon the ease with which German money went into the coffers of the papacy and the difficulty with which it returned. This was typical of the fashion in which secular and spiritual motives were intermingled throughout the Reformation. It is impossible to say which were the more powerful.

Luther was excommunicated by the Pope, and the Diet at Worms, called by the Pope in 1521, issued an edict declaring him an outlaw. But the revolt against papal authority had gone so far that no ruler sought to enforce the edict. Luther remained in hiding for a while, translating the Bible into German, and thereby setting up the first great landmark of modern German. Meantime the spirit of revolt gained in violence and took a sudden political turn. Luther was no radical, but his fiery attacks upon the princes and nobles incited a peasants' revolt (1525) that sacked monasteries and castles and slaughtered nobles. Luther was shocked by these excesses and he urged the rulers to put down the revolt with an iron hand. They did so with a

vengeance, killing 10,000 peasants with the utmost cruelty. The serfs gained nothing. This first-fruit of religious revolt—the first of countless religious wars that were to bleed Europe for a century and more—did not halt the movement, however. The revolting princes, led by the Elector of Saxony, drew up a "protest" against an effort to revive the Edict of Worms, thereby originating the term Protestant. The Augsburg Confession, written by Luther's friend Melanchthon, gave a formal statement of this Protestant faith, and in 1555 the Peace of Augsburg ended the dispute by leaving to each German prince and each free town and each knight to choose between the Catholic Church and the Augsburg Confession. Germany had not been unified politically, and this solution left the question of faith to the rulers of the hundreds of small independent countries comprising Germany to decide. The southern rulers stood by the Pope, and Bavaria has remained Catholic to this day. Generally speaking, the northern rulers chose Protestantism.

No alternative to the two faiths was permitted, and a citizen was obliged to conform to the choice of his ruler or emigrate. Protestantism held no more freedom of conscience at this time than did Catholicism. It is to be said, however, that in destroying the unity imposed by papal authority, Protestantism sowed the seeds of a new individualism and rationalism that made the ultimate arrival of religious liberty almost inevitable. But Luther had no real understanding of tolerance. Like the other Protestant leaders, he destroyed the authority of the Pope to replace it with the authority of the Bible as he interpreted it. In every country the religious wars were fought not on behalf of religious freedom but to exterminate a "heresy" and replace it with the "one true faith." Religious freedom in the modern sense was a far later growth, conceived in Holland in the sixteenth century and first achieved in the American

colonies. Roger Williams established tolerance for the colonists of Rhode Island in the middle of the seventeenth century, and was soon followed by the Roman Catholic colony of Maryland and the Quakers of Pennsylvania under William Penn. Rousseau and the French Revolution developed individualism to its logical conclusion in the Rights of Man in the latter half of the eighteenth century.

The Protestant Revolt culminated in Germany in the Thirty Years' War (1618–1648), the most bloody and destructive of all the many religious wars which the Revolt engendered. The fact that Calvinism was not permitted under the Peace of Augsburg was one cause of the war. Political motives helped keep the war alive. The slaughter and destruction were terrible. Gustavus Adolphus, king of Sweden, was the hero of the Protestant forces, and a noble figure by comparison with his chief opponent. France, under Cardinal Richelieu, prime minister to Louis XIII, joined in the warfare on the side of the Protestants in order to gain territory from Spain. The treaties of Westphalia (1648) ended the war and recognized many of the changes which had been taking place. Calvinism was accepted in Germany. The end of the Roman Empire was presaged, and France gained much at the expense of Spain. Germany, the battle-ground of the war, was left stricken and depopulated, to face a century of convalescence.

Whether one regards the Protestant Revolt predominantly as good or as evil in its consequences, there is no mistaking the sweep of the movement and the force and originality which gave it birth. To sing Luther's hymn "Ein Feste Burg" is to feel the power of this new and primitive form of Christianity that rightly or wrongly sought to bring man face to face with his God. Except in Italy and Spain, where Protestantism never flourished, the issues which it raised stirred bloody dispute for a century after Luther's death throughout Europe. It is not far

from the truth to say that the Protestant Revolt was Germany's Renaissance, her share in this great flowering of the European mind.

Her other contributions were slender by comparison. The invention of printing has been told. Beauty, as the artists of pagan Italy worshipped her, passed Germany by. Two artists of the first rank, Albert Dürer (1471–1528) and Hans Holbein (1497–1524), stand out as children of a Renaissance so rooted in the northern soil that it felt no need of examples from ancient Greece or Rome. Dürer's engravings speak the soul of Protestantism at its stern and noble best. Holbein's portraits rank with the greatest of all the centuries.

Politically, the Renaissance left Germany untouched. To speak accurately, there were Germanies rather than a Germany. Her map remained a patchwork quilt of small, independent countries, several hundred in number. There were the seven electors (so called because they elected the emperor of the Holy Roman Empire), three of them archbishops, one of them the king of Bohemia. There were the great duchies of Bavaria and Saxony. There were free towns like Nuremburg and Frankfort. Lastly, there were knights by the score, ruling over a few acres, a castle, a village. All owed a nominal allegiance as vassals to the emperor of the Holy Roman Empire, but so weak had that monarch become that here was no source of unity. The national assembly, called the diet, was unrepresentative and ineffective. Feudalism lived on in Germany as a nightmare, obstructing nationhood, fomenting disorder. Not till the nineteenth century were the beginnings of German Confederation achieved.

Switzerland

The story of Switzerland is closely attached to this chapter of German history. The Renaissance saw her birth as

a nation; and in the same years the course of the Protestant Revolt was profoundly influenced by Swiss leadership. By sheer courage, warring over three centuries, these mountaineers fought themselves free of the Holy Roman Empire, and in 1499 became a practically independent country. The forest cantons around Lake Lucerne which led the revolt were German; Italian districts to the south and French to the west, including the city of Geneva, were added to the confederation. (The transition to a centralized federal state, of the American type, did not take place till the nineteenth century.)

A contemporary of Luther's, a German priest, Zwingli, started the revolt against the Pope, preaching in the cathedral of Zurich. Like Luther, he combined political with religious reforms. A Frenchman, John Calvin (1509–1564), carried forward the revolt in Geneva, and was destined to have a world-wide influence. In "The Institutes of Christianity" he set forth the principles of Protestantism with all the logic and clarity of the French mind. He took rank as the first and greatest theologian of Protestantism. So powerful was his influence that the citizens of Geneva called upon him to organize their city. The theocracy which he set up outwardly separated church and state, but in fact it rigidly regulated the life of every one, and subjected the state to its religious leaders. The extreme rigor of Calvin's faith was illustrated in the burning of Servetus, a Spanish reformer, who took refuge in Geneva. Death for heretics was the accepted principle of the age, and not much greater blame attaches to this execution than to any of the other thousands of executions by Catholics and Protestants alike. But the episode bears striking testimony to the intolerance of the new faith that replaced the infallibility of the Pope with the infallibility of the Bible.

It was Calvinism, not Lutheranism, that spread to France, Holland, and Scotland, and that largely colored the

religious faith of the Puritans of New England. Switzerland, herself, has remained divided between Protestantism and Catholicism to this day, and her Protestants are divided between Zwingliism in the east and Calvinism in the west.

3. SPAIN, PORTUGAL, AND THE NEW WORLD

Of the nations feeling the upthrust of the Renaissance, the swiftest to flower politically were Spain and Portugal. As if by some law of nature, their decay was equally rapid. Between 1500 and 1600 they shared in the mastery of most of Europe, discovered a new world, conquered an empire, ruled the seas—and collapsed.

Spain's political history in this period touches all Europe by reason of Emperor Charles V (1500–1558), who, as the result of astute marriages through several generations, fell heir to most of western Europe, and by ability held it. This most powerful ruler since Charlemagne was less a Spaniard than a Hapsburg, a member of the ruling family of Austria. He had the projecting lower jaw of the Hapsburgs, which has persisted down to Alfonso, the present king of Spain. The manner in which the family tree of Charles V affected the government of many nations was typical of the period. Great regions passed with a wedding-ring, and dynastic quarrels caused frequent wars. This conception of peoples as part of a dowry, as so many heirlooms, has a strange look to modern eyes. It was essentially a feudal conception, natural and inevitable to generations reared in an atmosphere where loyalty was personal and all that one asked from one's lord or king was protection. The growth of nationalism spelled its doom by developing a wider loyalty, to a region, to one's fellow citizens, to all that makes up the civilization of a nation, and ultimately elevated that loyalty above any king or dynasty of kings. But this change did not ripen till much later, with the French Revolution and

the century that followed. Of a piece with this absolutism was the practice by which a ruler largely determined the religion of his people, and church and state were, as a matter of course, united.

The Holy Roman Empire, ostensible descendant of the Roman Empire, had become but a mere shell at this time. The Hapsburgs, who acquired Austria in the thirteenth century, had succeeded for a number of generations in getting themselves elected to this empty title of emperor. Charles V inherited Austria from his grandfather, Burgundy and the Netherlands (modern Belgium and Holland) from his grandmother, from his mother (daughter of Ferdinand and Isabella) Spain, and, in addition, Naples, Sicily, and Sardinia. Here was no nation but a miscellaneous collection of widely separated peoples. That Charles held them together at all was a tribute to his good sense and moderation. In ability and in dignity he was the greatest prince of his time, which comprised some of the greatest names and years of the Renaissance. His contemporaries included Michael Angelo in Italy, Martin Luther in Germany, Francis I in France, and Henry VIII in England.

As emperor and a faithful Catholic he touched the Protestant Revolt, leading in the efforts to suppress Protestantism. At home, he accepted the revival of the Inquisition, and in the Netherlands he supported it with sober fervor. He warred with varying success against Francis I of France. His contacts with the Netherlands and with France belong with their separate stories. But nothing in his life compares in importance with the conquest of the Americas, which he helped carry forward to completion.

It is difficult to exaggerate the significance of the discovery of the New World. Till the voyages of Columbus no one dreamed that the Americas existed. The feat deserves all the stress that the year 1492 has gained. But no discovery of the roundness of the earth was involved. That

the earth was a sphere was well known to the Greeks. Aristotle discussed the theory as accepted doctrine, citing the curved shadow of the earth upon the moon in an eclipse as proof. Eratosthenes in the third century B. C. measured the earth. The Alexandrian mathematician and astronomer, Ptolemy, in the second century A. D., measured the earth, and his conclusion, a sixth smaller than the fact, helped confuse Columbus. The mediæval church was not interested in the observed truth of the physical world, and this item of Greek science, like so many other items, was lost to sight for a thousand years by the mass of European people. Following Saint Augustine and the other early fathers, some churchmen taught that the earth was flat, that it was absurd to think of men walking beneath us with their feet up and their heads down. But the rebirth of science, however slow its beginnings, had recovered the old truth for learned men.

A long line of brave voyagers preceded Columbus. Prince Henry of Portugal, called the "Navigator" (1394–1460), was a true pioneer, and it was largely due to his initiative and imagination that the small nation of Portugal became, for a brief period, a great empire, with colonies as far away as India. His caravels, the most seaworthy of their time, and Portuguese mariners, the best seamen, rediscovered the Madeira Islands and the Azores in mid-Atlantic. They pushed southward along the coast of Africa in search of a route to the East, which had become the goal of all explorers. Spice was the chief cause of this pursuit, large quantities of which were brought overland from India and delivered by the great and prosperous fleets of Venice and Genoa. The Cape of Good Hope was rounded in 1486, in 1498 Vasco da Gama sailed to India, and in 1512 Portuguese ships reached the long-coveted goal, the spice islands of the Moluccas. These are southeast of the Philippines in the Pacific Ocean, east of Bor-

neo. They lie beyond a continent, across an ocean, 10,000 miles distant from Lisbon via the Cape of Good Hope, yet the captains of Portugal set up an active trade with their Far East colonies, half-way round the earth. Portugal stood the first sea-power of the world, and enjoyed almost a century of fabulous wealth, that transformed Lisbon into one of the most beautiful cities of Europe. There were a number of causes of her sudden decay. The Jews and Moors, among her most industrious citizens, were expelled, the Inquisition killed, the sudden flood of gold from the colonies corrupted—Portugal and Spain suffered the same diseases. In the case of neither is it possible to be certain of causes and effects, let alone rate their relative importance. Protestants are prone to blame the evils of both countries upon the Catholic Church, which remained supreme in the peninsula. The real cause may have lain deeper; in such basic factors as climate, or mixture of blood, of East and West. In all such speculations a conclusion is only a guess, with no pretense to scientific validity.

In the early sixteenth century Portugal possessed the greatest colonial empire in the world. Her possessions included islands of the Atlantic, Brazil, and much territory in Africa and the Far East. By the end of the century her ruling family had degenerated, her armies had been overwhelmed in Africa, she was absorbed by Spain. Logic certainly favored a single nation on the Iberian peninsula. Yet such vitality pulsed in the new nationalism of Europe, that the Portuguese revolted and fought their way back to independence, which they have ever since maintained.

While the Portuguese caravels were slowly pushing their way round the Cape of Good Hope, a Genoese sea-captain, Christopher Columbus (1446–1506), was turning his eyes in another direction. His goal was the same, the spices of the East and the gold and riches which Marco Polo had made famous. But he conceived the plan of

reaching Cathay (China) and Zipangu (Japan) by steering boldly westward across the Atlantic. He seems to have known the theories of Ptolemy, and he felt no doubt that the world was round. Because Marco Polo exaggerated the distance he travelled across Asia, and because the Ptolemaic estimate of the earth's size was too small, Columbus greatly underestimated the distance to be traversed. He never dreamed that two great continents lay between him and his goal.

He faced untold difficulties and disappointments in securing support for his hazardous adventure. Finally, he won the aid of Queen Isabella of Spain, and in 1492 sailed away over the western horizon with one decked ship, the *Santa Maria,* and two small caravels. On the thirty-second day, after dismaying delay and threatened mutiny, he sighted land, probably Watling Island, one of the Bahamas, and, going ashore, planted the royal banner of Spain in its soil. Thereafter he discovered Cuba, which he took to be China, and Haiti, which he thought was Japan. Returning to Spain, he was received with the highest honors. Three more westward voyages he made, and, in time, reached South America, coasting along it as far as the mouth of the Orinoco. But he never realized what he had discovered, and died still believing that he had found a westward route to Asia. The mistake is perpetuated to this day in the name of the American natives, who are still called Indians, as if they were inhabitants of India, and in the name of the islands of the Caribbean, which are still called the West Indies.

The sea has bred bravery from the earliest times, and witnessed many desperate ventures, but none more daring than the voyage of this Genoese, an admiral of Spain, into the unknown West. His accidental discovery of a new world was far more important than the opening of any trade routes. It faced the European world in a new direc-

tion, and centred the future civilization of the West around the shores of the Atlantic.

The names of three other great captains belong here. John Cabot, of Genoese birth, living in England and acting for England, voyaged across the north Atlantic in 1497 to the mouth of the St. Lawrence. The next year he coasted farther south. He discovered the mainland of North America, and upon his voyages the English claims were based. He, like Columbus, thought he had reached Asia, and so reported. In 1513, Balboa, a Spanish adventurer, marched across the Isthmus of Darien (now Panama) and discovered the Pacific. He heard of the riches of Peru and planned to sail down the west coast. By his ability and kindness he won the support of the natives, but was killed by a rival Spaniard. Hardly less daring than the first voyage of Columbus was the voyage of Ferdinand Magellan, a Portuguese in Spanish employ, across two oceans and around South America. His expedition, starting in 1519, passed through the treacherous straits which bear his name and circumnavigated the globe, returning to Spain. He was slain by natives in the Philippine Islands. If any one still doubted that the world was round, the voyage of Magellan ended these doubts. More important, he made it clear that America was no island but a great continent. The vast scope of Columbus's discovery became apparent.

The Spanish conquest of its part of the New World was swift and ruthless. It preceded by a whole century the slower British and French explorations to the north. As will be seen, the conquests of these latter nations were true colonies, settled by Europeans, and they prospered and endured as outposts of European civilization. The Spaniard's goal was different. He sought riches that he could carry home, the quick profits of the raider. There were various reasons for this divergence. Climate furnished a principal one. Madrid is in the latitude of New York, but

owing to the trade-winds the Spanish explorers usually fetched up in the Caribbean. As a result, most of their colonies were in the tropics. The Spanish Main meant originally the mainland of South America from the Orinoco to Panama. Later it was applied to the Caribbean Sea itself, in which or around which the Spanish explorers operated. The problem of white settlement in most of these regions is still difficult.

Cortez was the greatest of the Spanish conquerors in America. He entered Mexico in 1519, and by audacity, military genius, and some cruelty subdued with a few hundred Spanish soldiers the whole empire. A decade later Peru fell to the less able and more unscrupulous and cruel Pizarro. From both conquests vast riches flowed back to Spain, for each country possessed an old and considerable civilization, far in advance of the rest of the natives of America, and deserving to be compared with the period of the Great Pyramids in Egypt. In both countries the older civilizations, so laboriously built up over the centuries, were ended. The only solid effort to replace them with a new civilization was the missionary labor of the Spanish priests. Here was the bright side of the Spanish conquest. Priests not only toiled for Christianity but sought to curb the horrible cruelties of slave labor in the mines. The whole story of the Spanish adventure in America is bespattered with blood. It is to be recalled, however, that the age in Europe was one of cruelty and that the Spanish were the most cruel of Europeans—the Inquisition, for example, was most effectively used there. At least, the Spanish conquerors treated their American victims with no more barbarism than they treated their heretics at home.

It seems incredible that so great an empire could decline so swiftly. Yet in 1588, when the Spanish Armada failed disastrously in its attack upon England, her star was already setting. The forces which worked the undoing of

Portugal beset Spain as well, along with an alien rule—that of the successors of Charles V, Hapsburgs all—which brought her into conflict with most of Europe and bled her white.

The Protestant Revolt made little headway in Spain, and, thanks to the initiative of Charles V, she became the sword of the Counter-Reformation, the response of the Catholic Church to Protestant attack, comprising an effort to reform the Church from within and the suppression of heresy. The Council of Trent (1545–1563) was called by the Pope in the midst of the Reformation in an endeavor to prevent a schism. It failed to achieve this end, but it established some practical reforms in the Church, while reaffirming the old faith unchanged. To repress heresy it created the famous "Index of Prohibited Books," to which a committee of church censors to this day condemns heretical works. A Catholic is forbidden to print, circulate, or read a book on the "Index."

The greatest factor in the Counter-Reformation was the Jesuits, a new religious society, founded by a Spaniard, Ignatius Loyola (1491–1556). He was a contemporary of John Calvin and applied the same ruthlessness to the support of his belief. Trained as a soldier under Charles V, he set down obedience as the first rule of his order, and the Jesuits became the best disciplined and most efficient of priests. They were preachers, teachers, missionaries, carrying the old faith around the world. It was Jesuit priests who entered Mexico and Peru and who, later, were among the first white men to explore Canada and the region of the Mississippi. Protestants have been slow to do justice to these noble and courageous followers of Ignatius Loyola. Their opinion was formed upon observation of certain later Jesuits who developed the conception that religion should be made as comfortable and beautiful as possible. A considerable part of the later Counter-Reformation was built

on this idea, in sharp contrast with the sterner morality of Protestantism that reached its own extravagances at the opposite pole in the repression of all beauty and pleasure. A gorgeous architecture was developed in the Jesuit churches, casuists discovered convenient excuses for sins, and commercial adventures caused corruption. The order was suppressed by the Pope from 1733 to 1814.

The record of Spain in art and literature is singular. There was no broad stream of achievement, save in drama, the chief popular art of Spain; yet Velasquez (1599–1660) was probably the greatest of all painters in sheer technic and, much later, Goya (1746–1828) made a highly individual yet not less extraordinary contribution to European art; Cervantes (1547–1616) in "Don Quixote" wrote one of the greatest of prose satires, ridiculing the romantic excesses of chivalry in the Middle Ages. The Prado at Madrid is one of the greatest art museums in the world. The cathedrals of Spain combine Gothic beauty with a richness of color and design that is glorious and unique. The Renaissance in Spain, supported financially by the gold of the Spanish Main, created much lofty beauty, inspired by Greece and Rome, yet essentially Spanish in its development. Slender as is this intellectual and artistic record of Spain, its few outstanding geniuses must be ranked with the greatest the world has known, yet distinguished from them by a virile intensity, at once passionate, proud, cruel, and melancholy. Influencing this Spanish tradition was the Moorish architecture, preserved at its best in the Alhambra at Granada, one of the great architectural glories of the East in Europe. No better proof could be given of the existence of some essential difference between Europe and Asia or Africa than the contrast of this structure, varicolored and delicate, erected on the Iberian Peninsula, with the more forthright structures of Gothic and Renaissance Europe. The Spaniards succeeded in driving the Moors

out of Spain; they could not destroy entirely the inheritance of the centuries during which the East and the West there lived together.

4. THE LOW COUNTRIES, HOLLAND AND BELGIUM

The history of the Netherlands,* or Low Countries, is closely related to that of Spain during this period. The relationship is one of constant warfare and utter contrast. It saw the splitting of the Netherlands into two countries, one Protestant, one Catholic, and in the former a heroic war of independence that resulted in the first beginnings in Europe of republican principles and religious tolerance. The small country of Holland, the size of Maryland, was a pioneer of freedom for the whole Western world. At the height of her power, she won a great colonial empire overseas, which she never entirely lost. The southern region of Flanders, now a part of Belgium, was a pioneer in art for the whole of Europe, and the artistic achievement of both countries ranks with the greatest.

It will be recalled that when Charlemagne died, his empire was split among his three sons, and that a middle kingdom was created running from Italy to the North Sea and including the territory of Alsace and Lorraine, which has long been in dispute between France and Germany. This long, narrow empire held no possibility of permanence, yet the conception has refused to die, possibly because of the political convenience of a buffer state, possibly because of racial and linguistic facts resulting from the mixture of Teuton and the older stocks which made these between peoples restless members of either the Eastern or Western Empires.

* Netherlands is the ancient name for the region which is now Belgium and Holland. The kingdom of the Netherlands became the official name of the northern part, called, inaccurately but conveniently, Holland in English usage. Holland is really the name of an ancient county and modern province forming part of the kingdom of the Netherlands.

In this region Switzerland had already achieved its unique independence as a trilingual state. The Netherlands might conceivably have attained a similar unity. Partly owing to the bitterness of the religious issue, the region split into two buffer states, the one Protestant and speaking a Teutonic language, the other Catholic and speaking French or Walloon, another Romance tongue. Thanks to Napoleon, they were united in the nineteenth century; but the old cleavage prevailed. The rise of these two small nations is typical of the strange and important development of nationalism throughout Europe during the Renaissance. Race, religion, dynasty, geography, language, heroes, all played their part. This is the story of the changes that created these two small nations in the north, corresponding to Switzerland in the south, out of the old middle kingdom of Lotharingia.*

The fifteenth century saw a bold effort to revive this old Carolingian unit under Philip the Good of Burgundy. To this prosperous region of eastern France was united through marriage the county of Flanders on the North Sea, thanks to its weavers, the richest spot in Europe. By the thirteenth century the Flemish towns of Ghent, Bruges, and Ypres had grown to be large industrial cities, ruled in democratic fashion through their trade guilds. The rest of the Netherlands was added to the Burgundian possessions and the whole subdued by the ability and statesmanship of Philip. The dream of a revived middle kingdom, stretching from the Mediterranean to the North Sea, loomed as a real possibility. But the next duke, Charles the Bold, by his own rashness, and through the slow wiles of Louis XI of France, met disaster, and the house of Burgundy lost its chance. As has been seen, Burgundy and the Netherlands fell into the Hapsburg lap of Charles V.

* The part of the kingdom that bears its ancient name in modern form, Lorraine, lies in the 170 miles of disputed territory.

Born in Ghent, the young emperor began his rule with sympathy and moderation. But as Calvinism gained ground, especially in the northern provinces of the Netherlands, the emperor directed an increasing rigor toward heretics. The Inquisition was applied with a vengeance. By the reign of Philip II religious excitement became so intense that bands of Protestant iconoclasts raided the churches, smashing altars and breaking images. There was, however, no bloodshed, as in the peasants' revolt in Germany. In consequence of the outrages upon the churches, the great Spanish general of his time, the duke of Alva, was sent to crush this revolt and extirpate heresy. There followed probably the most cruel and murderous of religious persecutions that the Reformation set in motion. "The Council of Blood" was the popular name for Alva's religious court. Thousands of Protestants were burned, beheaded, or hanged.

The revolt of the Netherlands developed into the most desperate and prolonged of all struggles for freedom. This small people set to work to shake off the tyranny of the greatest empire since Charlemagne. The contrasts with the American Revolution are many, but in one respect there was a close resemblance. The Dutch revolution owed its success largely to one man, William of Orange (1533–1584), called William the Silent, who in height of inches and of moral character, of iron will and fearlessness, suggests both the person and the rôle of Washington in the American Revolution. The warfare was picturesque and heroic. The first successes of the Protestants were won by the Sea-Beggars, corsairs outfitted by William, who raided and captured ports with the seamanship that was to make Holland for years the greatest sea-power of the world. Three historic sieges, of Haarlem, of Alkmaar, and of Leyden, marked the turn of the struggle. In all, the battle was waged on sea and land. Haarlem fell to the Spanish after

a winter of bravery, starvation, and death. Alkmaar was saved by cutting the dikes and threatening the invaders with drowning. The fate of Leyden hung in the balance for months, and the city finally was rescued by a fleet manned by the Sea-Beggars, who sailed inland through breaches in the dikes, and at the last, desperate moment were aided by an equinoctial storm that piled the North Sea high over the lowlands of Haarlem. As in the American Revolution, there were many dark days, and victory seemed a forlorn hope. In 1579 the Union of Utrecht was signed by the northern provinces, and the Dutch became in fact a free nation, sworn to resist foreign tyranny and to uphold religious freedom. In the same year the southern provinces united in the name of Catholicism. The battle was by no means over, and in 1584 the cause suffered an irreparable loss through the assassination of William the Silent, "The Father of His Country." It is related that the children wept in the streets when he died. But by this time the rising sea-power of England had become engaged in a death-grapple with Spain, and the destruction of the Spanish Armada in 1588 aided the cause of Holland. Her ultimate independence was certain, and in 1648, by the Peace of Westphalia, the eighty years' war came to an end.

In this seventeenth century the Dutch nation came into commercial conflict with England. The Dutch East India Company established trading-posts from the Cape of Good Hope to Japan. The Dutch West India Company conquered a large part of Brazil. Henry Hudson, an English captain, searching for the northwest passage, on behalf of the Dutch East India Company, sailed up the Hudson River in 1609, and in 1626 New Amsterdam was founded on Manhattan Island where New York now stands. Dutch fur traders did a thriving business with the Indians of New York and the surrounding region. These were the golden years of Dutch supremacy, commercial and naval. She

was the wealthiest and most civilized country of Europe. In the series of naval battles with England that followed, the Dutch admirals Van Tromp and de Ruyter long held their own, sailing the British Channel with brooms at their mastheads, and it was not until nearly the end of the century that the supremacy of British fleets was finally established and the decline of the Dutch colonial system began. (New Amsterdam was, however, lost to the Dutch in 1664 during the first naval war with England.)

The artistic record of the Netherlands begins in Flanders. Here soon after 1400, in the work of Jan and Hubert Van Eyck, the north led the south. Their altarpiece at Ghent, "The Adoration of the Lamb," ranks as one of the greatest of all pictures. This was clearly a revival of mind and imagination untouched by Greece and Rome, a suggestion of what the Renaissance might have been if no Revival of Learning had occurred. Fidelity to truth is an outstanding quality of these early Flemish painters and of the great line that descended from them. Through Dijon and Bourges in Burgundy, the Flemish example influenced France and reached Italy.

The new nation of Holland produced in the seventeenth century one of the greatest of all painters and etchers, Rembrandt (1606–1669), well reflecting the severer and more democratic outlook of this Protestant and independent people. A long list of great seventeenth-century Dutch painters could be added, worthy to rank with the greatest Italian —Hals, Vermeer, Ruisdael, among others. In Catholic Flanders the great Rubens (1577–1640) flourished in the seventeenth century, strongly influenced by Italian example, yet individual and northern in his robust, sensuous style. His pupil Van Dyck carried forward his tradition of great portrait-painting.

Let it be added that Erasmus, the greatest man of letters of his time, was a Hollander, and it can be seen how varied

and precious was the yield of the Low Countries to European civilization.

5. FRANCE

Nowhere did the Protestant Revolt cause so protracted and deadly a combat as in France. Perhaps the mingled racial strains of her people were more nearly in equilibrium than elsewhere in Europe. Geographically, too, she was the one nation uniting the Mediterranean and the North Sea. For these, or for whatever reasons, the forces that supported and opposed the Revolt seem to have been more nearly equal than elsewhere. Nor does the result, the failure of Protestantism to convert a majority and the final sweeping Catholic victory, necessarily contradict this view. For from the long warfare the Gallic Church and the French people took a unique independence of Rome, which they have never lost.

That the issue was fought out to a final devastating decision was in large part due to the growing absolutism of the French monarchy, which at the end would brook no compromise. As in every other country, the questions of faith there became hopelessly involved with the ambitions of rival princes. It was the additional ill fortune of France to produce but one great king, Henry IV, during this long period of trial. Extreme absolutism had a long test in France and failed miserably, richly earning the judgment meted out by the French Revolution.

A far-seeing monarch, Louis XI, united the French nation by his patient cunning. He was succeeded by a line of pleasure-loving princes of the Renaissance, relics of the days of chivalry, who could think of nothing better to do than to keep their country at war. These were the great days of the Italian Renaissance, and it was in the direction of Italy that these monarchs turned alike for art and conquest. Charles VIII led an army into Italy to annex Na-

ples. That hopelessly divided country made no resistance, and Florence, under Savonarola's rule, at first welcomed him. But incompetence deprived him of his conquests and he retired in a hurry with nothing gained. Louis XII (reign: 1498–1515) possessed more ability and an affection for his people, but he, too, wasted a lifetime warring in Italy. He conquered and held Milan, and thereby Ludovico Sforza, "the Moor," died in a French dungeon at Loches. But in the end the Pope called in Spaniards, Germans, and Swiss in a Holy League, and Louis XII died with nothing won.

There followed Francis I (reign: 1515–1547), a kingly, spoiled child, the contemporary of Emperor Charles V and Henry VIII of England. He won a brilliant victory over the Swiss mercenaries of the Pope at Marignano (1515). Thereafter he waged a long and losing struggle against Charles V, who after one victory took him to Madrid as his prisoner and forced him to sign a humiliating treaty. At home he increased the powers of the king at the expense of both Church and nobility. After some hesitation, he repressed with increasing rigor the growing body of Protestants who wished to adopt the faith of their countryman, Calvin. Handsome, frivolous, and vacillating, he deserves to be remembered chiefly as a patron of the arts. He brought Benvenuto Cellini and Leonardo da Vinci to Touraine, and strengthened the already considerable influence of Italy upon French art and letters.

The next group of weakling monarchs, the last of the Valois, are famous chiefly for the women associated with their careers. Henry II is less well known than his beautiful though elderly mistress, Diane de Poitiers—she was twenty years his senior—and his astute and ambitious Italian wife, Catherine de Medici. Francis II married Mary Stuart, Queen of Scotland, and died. Charles IX and Henry III were alike ruled by their mother, Catherine de

Medici, who was at times tolerant toward the Protestants when she needed their political aid, but at times became their bitterest enemy, and among other slaughters contrived the appalling massacre of Saint Bartholomew's Eve (1572), which slew several of the Huguenot leaders and probably 10,000 Protestants in Paris and the provinces. This degenerate house of Valois came to an end and the slate was cleaned for better times when Henry III had his chief rival, Henry of Guise, stabbed to death in the Château of Blois, and was, himself, assassinated within a year (1589). Throughout these wretched reigns a succession of eight religious wars drenched France in blood. The French followers of Calvin were called Huguenots, and they formed a powerful political as well as a religious party, including a number of great nobles, among them Admiral Coligny. The fortunes of the battle swayed to and fro; tolerance was won for the Huguenots, only to be lost.

The one great king of the time, Henry of Navarre (reign: 1589–1610), who reigned as Henry IV of France, descendant of Saint Louis and the first of the Bourbon dynasty, came to the throne in 1589 and brought to France a twenty-one-year breathing spell of religious peace and material well-being. He looked a king and was a king. His boyhood had been spent in the province of Bearn, in the southwestern corner of France (the ancient kingdom of Navarre included territory on both sides of the Pyrenees). Plain fare and a rough outdoor life brought him to ripe manhood, sturdy, alert, and brave to the point of recklessness. He was a king on horseback, a dashing captain of cavalry, and the first years of his reign were passed in overcoming his enemies. He had been born and brought up a Calvinist, but finding that Paris and the bulk of the nation were resolute for the old faith and that he could never hope to reign as a Protestant, he made his peace with the Pope and joined the Catholic Church. "Paris was worth a Mass," he observed.

The religious wars following so soon on the Hundred Years' War left France in a pitiable plight. Henry devoted his reign to upbuilding the nation, aiding agriculture and commerce, building roads and canals, dismissing useless officers of the government, and reforming the national finances. The honest and thrifty Sully, a Protestant, was his right hand in this work. By the Edict of Nantes (1598) he kept faith with his old coreligionists by proclaiming toleration for Protestants, with equal rights of citizenship, and the right to hold services where they had already been held, Paris and certain other towns excepted. There was slow but real progress in these years, and Henry IV deserves the affectionate regard in which he has been held by Frenchmen. Yet his last years were clouded by fantastic war-making and love-making, and his death by an assassin's knife exhibited one more weakness of the monarchical system, the uncertainty of its rule, whether good or bad.

The next 105 years, from 1610 to 1715, were spanned by two kings, Louis XIII and Louis XIV, the latter ruling fifty-four years, one of the longest reigns in European history. Two churchmen, Cardinal Richelieu and Cardinal Mazarin, serving as prime ministers, dominated the first half of this period. The former was a Frenchman, pitiless, cunning, able, pursuing tirelessly the welfare of the realm through the policies which he believed in. Chief of his difficulties was the fact that the king disliked him, and much of his time was spent in tactfully persuading Louis XIII to his views. At home he sought to make the royal power supreme; abroad he carried on the policy of endeavoring to crush the Hapsburg rulers of Spain and Austria, which Francis I had initiated and Henry IV seconded. So unswerving was his political conviction of the necessity of humbling the Hapsburgs that he entered the Thirty Years' War against Austria and Spain on the Protestant side.

He subsidized Gustavus Adolphus and finally declared war. He did not live to see the victory that came. Mazarin was a Sicilian, and he came to power by courting Anne of Austria, Louis XIII's Spanish widow, who as queen mother became regent when Louis XIV, at the age of five, succeeded to the throne. He was the lesser of the two cardinals, ruling by guile rather than personal force. Yet he carried the policies of Richelieu to a successful end, though a foreigner, faithfully serving France. By the treaties of Westphalia (1648) and the Pyrenees (1659) the Hapsburg dream of power was ended and France took the leadership on the continent.

The reign of Louis XIV was typical of the late Renaissance, of the natural tendency of a great period to end in formalism, seeking to make up for what it lacks in true creative spirit by elaboration and splendor. Louis was handsome, industrious, and took his task seriously. He carried absolutism to its logical completion, accurately expressed in the famous declaration often ascribed to him, though there is no proof that he ever said it, "L'état, c'est moi," the equivalent of the English "I am the state." He ruled with a heavy, golden splendor that yielded more bourgeois pomp than aristocratic dignity, more magnificence than beauty. The palace of Versailles is a true symbol of his reign, vast, elaborate, and stiff. The cost of his magnificent court was a terrible burden on the nation, and when Louis died, the people of France were once more oppressed and starving.

Perhaps the worst disservice that Louis did his country was the revocation of the Edict of Nantes (1685). The lot of the Protestants became increasingly difficult after the death of Henry IV. It remained for Louis XIV to renew active persecution and finally drive the great mass of Protestants out of France, many of them across the Atlantic to America. They were well-to-do, industrious, among the

best citizens of the country. Their loss was a severe blow. Louis's decision was influenced by Madame de Maintenon, whom he married secretly after the death of Queen Maria Teresa. She was a devout Catholic, and the last years of the king's reign were passed in religious gloom, very different from the brilliant gaiety in which it began.

In addition Louis waged a series of costly wars of conquest that wrecked the finances of the country despite all that his able minister, Colbert, could do. He tried to conquer Holland and failed. He sought Spain, and the War of the Spanish Succession had its echoes in Queen Anne's War in America between the French and English colonists. By this time England had taken the lead of the coalition in the fight against Louis's grandiose ambitions, her armies commanded by the famous duke of Marlborough, a brilliant courtier and an able general. When peace came at Utrecht in 1714 it was unfavorable to France. The power which Richelieu and Mazarin had built up so laboriously was hopelessly compromised by the time of Louis's death.

Among the losses was part of the French colonies in America, gained over many years by bold voyagers. A band of Huguenots sought to found a colony first in South Carolina, then in Florida (1562–1565), but both failed, the latter group massacred by the Spanish. Other French explorers turned north to waters where their Breton seacaptains had already fished. Cartier sailed up the St. Lawrence as far as Montreal in 1536; Champlain made the first permanent settlement at Quebec in 1608; Jesuit missionaries pushed westward in their zeal for converts, Father Marquette reaching the upper Mississippi in 1673; La Salle explored the Mississippi valley to its mouth in 1682, naming the great territory on either bank of the river Louisiana in honor of Louis XIV. The French were explorers and traders rather than colonists. They built a chain of sixty forts stretching along the Great Lakes from

the St. Lawrence to the mouth of the Mississippi, founding thereby Detroit, Chicago, and St. Louis among other towns. Their fur traders were a bold and hardy breed, but they made comparatively few permanent settlements. When the clash with the English came, they were greatly outnumbered. The blundering wars of Louis XIV lost Nova Scotia, Newfoundland, and the Hudson Bay region to England, and in 1759 the defeat of Montcalm by Wolfe on the Plains of Abraham before Quebec ended New France for all time. When peace was made, the English advanced their western boundary to the Mississippi, Spain taking the Louisiana territory to the west. The story of France from 1685, the date of the revocation of the Edict of Nantes, forward is one of external decline, lasting till the rise of Napoleon a full century later.

The Renaissance produced no more typical offspring than Rabelais (*c.* 1490–1553). A monk, a wanderer about France, a physician, he wrote in his "Gargantua and Pantagruel" the perfect expression of these fresh and joyous years. The heroes are two giants, and the fantastic tale of their adventures laughs at the shams and hypocrisies of the age—the ignorance and immorality of the monks, for example—and sets up a brave and joyous ideal of life, full-blooded, kindly, and reverent. His language is coarse and his style inchoate; his philosophy presents the Renaissance at its noblest. Marguerite d'Angoulême,* queen of Navarre, was not less the Renaissance. Protector of Rabelais and disciple of Erasmus, a mystic and a Protestant, she wrote the delightful and ribald tales of the "Heptameron" (after the manner of Boccaccio). In France, as in Italy, the day of the lady, as learned as she cared to be and as powerful as her talents enabled her to be, had arrived. The essays of Montaigne (1533–1592) belong far-

* She was the sister of Francis I, the grandmother of Henry IV, and the great-aunt of Marguerite of Valois, popularly known as "La Reine Margot," Henry IV's first wife, with whom she is often confused.

ther along the road, holding to the old faith, yet ever sceptical. There was no subject to which he did not turn his searching, inquiring mind. The art of living was his concern, and his practical, pragmatic point of view, taking wisdom and aid wherever he could find them, explains much of the heart of France.

In the seventeenth century the thrust of the Renaissance is still to be felt in the dramas of Corneille, Racine, and Molière (1622–1673). The farces of the last descend from the great tradition of Rabelais, and rank with the masterpieces of literature. Not all the classic formalism of the court of Louis XIV could fetter this great genius. The same originality speaks in the fables of La Fontaine and the "Pensées" or "Thoughts" of Pascal, the intellectual leader of Jansenism, a religious movement within the Catholic Church that resembled Protestantism in its belief in salvation through grace, and was crushed as a heresy by Louis XIV. That monarch aspired to be a patron of all the arts, but his influence was seldom helpful. Of more importance was the founding of the French Academy by Richelieu in 1635.

There was no achievement in painting to match these literary monuments save in Burgundy—where the great Flemish tradition prevailed. The influence of Italy was strong elsewhere, and in the time of Louis XIV a slavish classicism arrived that produced solemn and uninspired structures like the Palace of Versailles. In sculpture Jean Goujon created a delicate and Gallic beauty, and in architecture the exquisite châteaux of the Loire, the loveliest palaces in the world, built in the sixteenth century by Francis I among others, display every stage of the Renaissance, and are a vivid record of the mounting influence of Greek and Roman models upon the old French Gothic styles. Typical of the overelaboration which often marks an art that has passed its prime was the baroque style of archi-

tecture developed in the seventeenth century at the same time as the Jesuit effort to make religion more appealing and agreeable. The word is often used interchangeably with rococo, but the latter belongs more properly to a later development, to the delicate and graceful curves of the Louis XV furniture and decorations of the eighteenth century. The spirit of the earlier baroque was rich and heavy, often clumsy. Both styles share the weakness of treating decoration as an end in itself instead of an expression of form, and there is a suggestive analogy in the flamboyant Gothic which also appeared at the end of an architectural period. It needs to be remembered, however, that genius can do great work in any age or style, and in the baroque period there are distinguished examples, and in the rococo much that is charming and exquisite. Every age is prone to regard its own taste as the last word in beauty. A reading of the past suggests that man has had many moods and many points of view, and that no single standard of beauty has been discovered any more than one final philosophy.

6. ENGLAND

The religious issue was powerful in England during the Renaissance, but it never caused the extravagance of feeling or the slaughter that desolated France. Political considerations controlled, and, though the rising tide of Protestantism was strong, the success of Anglican Protestantism involved a religious compromise.

The political struggle between Parliament and ruler was fully as important as the religious contest with which it was always entwined. The height of the Renaissance, the era of Queen Elizabeth and of Shakespeare, saw the eclipse of parliamentary and popular rights and the rise of absolutism as in France. But, unlike France, by 1700 the old rights of Magna Carta were restored and new rights added; and Parliament was established on a sure footing, inde-

pendent of royal contest. Thereby England led the world in the development of representative government, and set an example which all Europe and America were ultimately to follow.

Arriving late on the world scene, England set out to conquer the seas. She laid the foundations of a world-empire. She achieved the leadership of Europe by adopting the policy of preserving a balance of power.

Her literary flowering was late, sudden, and glorious. Shakespeare was born the year Michael Angelo died (1564), and his first play appeared as Montaigne died. A rich contemporary art surrounded, but no long line of literary forebears preceded, him.

Politically it was a period of tempest and sudden shifts of wind. Progress toward toleration and a limited monarchy was won not by logic or steady advance but by compromise, after experiencing extremes of Catholicism and Protestantism, through a practical sense for public affairs that triumphed over the selfishness of princes and the passions of fanatics. The list of religious turns and overtures, most of them due to the chance of a prince's or princess's religious upbringing, runs thus:

Henry VIII, the worst of the Tudor despots, severed the Anglican Church from Rome largely to secure a divorce (1534). His three children, by three different wives, succeeded him in turn.

Edward VI established Protestantism as the state church.

Mary restored Roman Catholicism.

Elizabeth restored Protestantism.

Charles I, the most despotic of the Stuarts, aroused fears that Roman Catholicism would be restored. He was put to death, and a commonwealth under the Puritanical dictatorship of Oliver Cromwell ruled (1649–1658).

The restoration of the Catholic Stuarts renewed fears of Roman Catholicism and resulted in the Revolution of 1688,

which placed William and Mary, from Protestant Holland, on the throne. The independence of Parliament was established.

Similar fears placed the elector of Hanover, George I, on the throne.

Thus, while Protestantism first prevailed in England to aid a king's selfish designs, it gained strength so rapidly that it helped set in motion two revolutions and colored the whole course of British government.

The period began with the Wars of the Roses (1453–1485), a feud between the houses of York and Lancaster with no understandable cause and no result save protracted bloodshed, and the succession of the Tudors to the throne. This period succeeded immediately to the Hundred Years' War, and was stained with incredible blackness even for this barbaric age. The monarchs of the period practised every species of crime, including fratricide and plain murder—the last of the Yorkists was the sinister Richard III, duke of Gloucester, who had the two young princes smothered in the Tower. He was killed at Bosworth Field (1485) by the Lancastrians, and Henry VII, the first of the Tudors, succeeded to the throne. It was with Henry VIII (reign: 1509–1547) that the Reformation reached England. This handsome, brilliant, and selfish monarch was no Protestant as a matter of conviction—he wrote a pamphlet against Luther for which the Pope gave him the title Defender of the Faith. Nor was the country greatly moved by the new religious views. There was, however, as in Wycliffe's day, a wide-spread hostility to the abuses of the Church and to the papal authority, similar to the feeling in Germany. Thus when Henry VIII desired a divorce so that he could marry Anne Boleyn and perhaps secure a male heir to his throne, he could break with Rome and meet little popular opposition. He had himself named supreme head of the Church and dissolved the monasteries,

thereby gaining enormous revenues. But he remained orthodox in doctrine and permitted little progress in the direction of Lutheranism. Thus the Protestant Revolt arrived in England through the personal needs of a despotic king. It remained and thrived because of a wide-spread antagonism to papal authority, largely based on political grounds. The faith of Luther and Calvin did not reach England in force till later. Henry was a friend of the new learning, and two great leaders of the English Renaissance, Sir Thomas More and Dean Colet, lived in his reign. The sinister figure of the king accomplished no darker deed than the execution of More for treason. The ruthlessness of Henry VIII toward his six wives was paralleled by the high hand with which he ruled the nation. His ambition and practical sense played a considerable part in the upbuilding of England for its triumphant years soon to follow.

The effort of Queen Mary to restore Catholicism proved futile. She was a kindly soul, little deserving the title of Bloody Mary which Protestants gave her. The executions for heresy in her reign numbered about 300, a horrible barbarism by modern standards, yet a mild policy by comparison with the terrors of the French religious massacres. The nation was too well pleased with its religious independence to return to Rome. The martyrs of Mary's reign served only to strengthen Protestantism. Amid general rejoicing Queen Elizabeth (reign: 1558–1603) brought back Protestantism, and with it the spirit of "England for the English." She was educated in the learning of the Italian Renaissance, and though she boasted of being (as she was by blood) "mere English," her mind possessed much of the astuteness and subtlety of an Italian. She was an able and patriotic ruler, and her reign covered one of the most glorious periods of English history, including the climax of the long contest with Spain, the destruction of the Invincible Armada in 1588, and the rise of Shakespeare.

Sir Francis Drake was the boldest voyager of her reign, ably supported by such gallant captains as Frobisher, Hawkins, and the versatile Raleigh. Drake pushed around the world (1577–1580) along the route of Magellan, sacking Spanish treasure-ships on the way. The piratical preying on Spanish galleons in the Spanish Main was the great adventure of English seamen for years. It inevitably brought on war in which Protestant Netherlands united with Protestant England against Catholic Spain, and by this time English seamen were so skilful that the great Armada sailed through the Channel to disaster. Sir Walter Raleigh began as a sea-captain, became a queen's favorite, and organized the first English effort to colonize America. It failed at various points along the North Carolina coast, yet the State of Virginia, named after Elizabeth, the Virgin Queen, preserves the memory of Raleigh's expeditions. Poet, historian, explorer, gaining his favor at court by his wit and good looks, and losing his head after a desperate adventure in piracy, Raleigh was a typical figure of the English Renaissance.

Scotland had long been hostile to England, supported in her antagonism by French aid. But under the leadership of John Knox, as stern a Protestant as Calvin himself, the country had become Presbyterian. Elizabeth strengthened the *rapprochement* of the two countries, which was to ripen into union under her Stuart successor, James I. Ireland had remained Catholic, and the reign of Queen Elizabeth was marked by ruthless efforts to force the Irish to turn Protestant, the first of a long series of futile efforts to assimilate Ireland by compulsion. Why Scotland turned Protestant and became a loyal part of the kingdom, and Ireland remained Catholic and unreconciled, is one of those mysteries of race and climate and what not else in which history abounds.

The story of Scotland in these years is bound up with

the fate of Mary Queen of Scots (reign: 1542–1587), one of the most charming, brave, passionate, and corrupt of women. She was brought up a Catholic in the French court, and married when fifteen to Francis II, a son of Catherine de Medici, who soon died. Thereafter she sailed to Scotland. When she found the faith of Calvin in command, she assented to its sway. Neither her religion nor her country prevailed against her ambition and her passions. She had three husbands and several lovers, the most important fact of these relationships being the birth of a son, James VI of Scotland, who was to become James I of England, thereby uniting the two kingdoms and establishing the Stuart dynasty on the throne of England. Driven out of her own kingdom by the wrath of her subjects at her immorality, she was imprisoned in England. Queen Elizabeth showed a generous desire to save her, but the fears of Protestant England prevailed, and Queen Mary was beheaded for complicity in a plot to overthrow Elizabeth.

The Stuarts brought to the British throne a leaning toward the Catholic faith and the divine right of kings, the same sort of despotic political theory which Louis XIV advocated in France. The Tudors had ruled England with a high hand, but they had done it in typical British fashion under a cloak of parliamentary forms. James I (reign: 1603–1624) took the position that he was responsible to God alone, and could make any law he pleased without consulting Parliament. Under his son, Charles I (reign: 1625–1649), the contest between king and Parliament came to a head. Likewise the religious contest reached its climax.

By this time Protestantism had gained great strength in England, and had developed that tendency toward sectarianism which has been its continuing characteristic. The

Church of England* had been the established church since the time of Henry VIII (except for the reign of Mary). But its members were already split into two hostile groups: the High Church party, which, while rejecting the Pope, held to most of the Catholic practices and faith, and the Low Church party, which opposed all "superstitious usages" and demanded an extreme simplicity of ritual. The members of this latter party were called Puritans; later the name was used loosely to include all the English Protestants who advocated a strict observance of Sunday. Among these latter were Presbyterians and Separatists, or Independents. Presbyterians held to the faith of Calvin and the church government which he devised, through presbyters or elders. The Separatists believed that each congregation should rule itself, and Congregationalism developed from this conception of church government. It was Separatists, driven to Holland by persecution, who sent forth the small band in the *Mayflower* who landed at Plymouth Rock in 1620,† and it was Separatists who chiefly settled New England. So far as faith went, there was no great diversity among Low Churchmen of the Church of England, Presbyterians, and Separatists. All were orthodox Protestants of a Calvinistic type, and all felt no tolerance either toward Roman Catholics or toward two new and heretical Protestant sects then forming. These were the Baptists and the Quakers. The former developed many subdivisions, but all rejected the orthodox doctrine of infant baptism, and held that the rite should be administered only to those old enough to profess their faith. The Quakers revolted against the formalism of the orthodox religions, and made an inward spir-

* The name Protestant has never been used in the title of the Church of England. It is, however, found in the Protestant Episcopal Church of the United States, an independent branch of the Church of England.

† These first settlers of New England are called the Pilgrim Fathers in American history. They and those who followed to New England were alike Puritans in the broader sense of the term and included various shades of Protestantism. But Congregationalism was the prevailing faith, and the theocratic governments set up forbade any other religion.

itual experience their central belief. They had no creed, no ritual or sacrament, and no priesthood, and practised passive resistance, opposing all violence and war.

In this confusion of many faiths, Charles I stood with the High Church of the Church of England, and under his leadership, practices were restored in the service which the Puritans regarded as "popish." He thus alienated the Low Churchmen of the established church as well as Presbyterians and Separatists. To this religious dissatisfaction was added a grave dispute with Parliament. By arbitrary arrests he drove that body to draw up the Petition of Right, another landmark in the growth of British liberty, asserting such fundamentals as that no tax should be levied without the consent of Parliament, and no freeman punished except according to law. His effort to get ship money for a war by a device of doubtful legality was boldly opposed by John Hampden, a country squire. For eleven years Charles ruled without a Parliament in the face of increasing hostility. Then an ill-advised effort to coerce Scotland to the Anglican service brought matters to a crisis. The National Covenant of 1638 pledged its signers to uphold Presbyterianism, and therefrom the Covenanters took their name, standing fast in the face of persecution and martyrdom. Charles was obliged to summon Parliament to procure money for his war in Scotland. There resulted the Long Parliament (1640–1653), which refused to aid Charles, defied his efforts to arrest its leaders, and started the Great Rebellion. Most of the aristocracy, the Catholics, and some Anglicans supported the king. They were called Cavaliers, and the parliamentary forces were known as Roundheads, because of the close-cropped heads of some of their members in contrast with the long hair of the Royalists.

The Rebellion would hardly have succeeded but for the military skill and iron will of Oliver Cromwell (1599–

1658), who organized an army of devout Puritans and fought the war in the spirit of a crusade. The Royalists were defeated at Marston Moor and Naseby, and the king became a fugitive. Even then there were efforts to negotiate a reconciliation with the king; but the situation was confused and perilous, for the rebels and the extremists of Parliament, with Cromwell leading, made up their minds to take his life. A Colonel Pride, representing the army, excluded the king's supporters from the House of Commons, and the Rump Parliament that remained after "Pride's Purge" set up a special court of the king's enemies, which found him guilty of treason and sentenced him to death. Charles was beheaded in 1649, the first monarch of Europe to be executed by his subjects.

His condemnation was unjust and extralegal, a purely military execution. It was the act of a small minority of fanatics and did violence to the wishes of the great majority of Englishmen. There resulted a swift revulsion of feeling. The weaknesses and trickery of Charles were forgotten and the country turned more strongly than ever toward the monarchy. Charles became for many a martyr and a saint. There can be no question of his personal virtue, his goodness in conduct and intentions, or of his sincere religious faith. He met an unjust death with dignity and fortitude. But in the years before he had displayed a feebleness and an obstinacy, a trust in evil counsellors, prevarication and deceit, which prevent his ranking as a great or even a competent king. Charles I was lifted by martyrdom to a regard far above his deserts.

There followed the strange years of the Commonwealth and the Protectorate, maintained by a small minority against the general will of England. The Rump Parliament proclaimed England a commonwealth, which was to say a republic. Cromwell labored with it to establish a constitutional government, but finally dissolved it because

of its obstinacy. He chose a new Parliament, the famous Barebone's Parliament, named after a Puritan member, Praisegod Barebone, and that proved quite as muddled and useless as its predecessor. Thereupon he became Lord Protector, and was for five years the virtual king of England, by right of the sword, his efficient, Puritan army. Cromwell was himself, by the standards of his age, tolerant, but he supported his partisans, the Puritan zealots, in turning against the Anglicans and Roman Catholics the same repression which they had suffered. They passed strict laws for Sunday observance, and the country had an experience with religious fanaticism which it never forgot. The black spots in Cromwell's career were his execution of the king without just cause, and his conquest of Ireland, where he slaughtered priests and put down Catholicism with extreme brutality. He was a masterly general, and by his vigorous foreign policy helped lay the foundations of British empire overseas. His brief years of rule gained him the respect and fear of all Europe. He died in 1658, and soon afterward the English Commonwealth passed, never to return. He had effected no organization which could endure. In 1660 the restoration of the Stuarts brought Charles II to the throne amid general rejoicing.

There would doubtless have been a natural reaction from the restraints of Puritanism; led by the example of flagrant debauchery set by this new Stuart, the period achieved a corruption without a parallel in England. As a king he was clever, but lazy, treacherous, and selfish. Of strong Catholic leanings, he made a number of efforts to secure toleration that would include that faith. But Parliament stood stoutly by the Church of England, and by various strict laws of conformity united all the nonconforming Protestants—Presbyterians, Independents, Quakers, and Baptists—in a group called Dissenters.

The last of the Stuart kings, James II (reign: 1685–

1688), received short shrift at the hands of his people. He was a Catholic, and showed a clear desire to restore Catholicism in England. By his first wife, a Protestant, he had a daughter, Mary, who had married William III, prince of Orange. For his second wife he married a Catholic, and she bore him a son, the heir to the throne. The Protestant leaders thereupon boldly invited William of Orange to rule over England. William accepted and marched upon London. James II tried to oppose him but his army deserted him, and the bloodless Revolution of 1688 was accomplished. James II fled to France, where Louis XIV received him.* Parliament named William and Mary joint sovereigns, at the same time enacting the famous Bill of Rights summing up the rights of the British citizen and the limitations on the rights of the monarchy. The next year the Act of Toleration granted freedom of worship to all the Protestant Dissenters, Presbyterians, Congregationalists, Baptists, and Quakers. Catholics were excluded from the Act, but their services were not disturbed. The contrast with the conditions in France at the same moment is striking. In 1685 Louis XIV had ended tolerance by the revocation of the Edict of Nantes, driving Protestants out of the country by the thousand. At the same time he was asserting the powers of an absolute monarch uncurbed by constitution or Parliament. In England, Parliament in setting up a new dynasty had definitely assumed the supreme power in the state.

* The fate of the Stuarts ran a long sequel. The Old Pretender, the son of James II, was proclaimed king as James III by Louis XIV, and lived at Rome, where the Pope acknowledged his title. Two futile efforts to gain him the throne were made, one in 1745 led by the handsome Young Pretender, "Bonnie Prince Charlie" of the songs. Jacobite sentiment was strong in Scotland, and it was there that Charles landed and led his armies to defeat at Culloden. His romantic escape helped his fame to live, but all serious hope of restoration was over. That the Order of the White Rose (the Stuart emblem) still exists bears witness to the extraordinary loyalty of which human nature is capable toward a romantic and hopeless cause. Such devotion needs to be remembered in a period when some historians are stressing economic causes as the sole spring of human action.

The flowering of English literature was as sudden and glorious as was the Renaissance burst of painting and sculpture in Italy. The Anglo-Saxon literature has chiefly a linguistic and historical interest. Chaucer in the fourteenth century was a great and almost solitary figure, sharply contrasting with earlier writers, and recording in style and language the influences of Mediterranean civilization upon England potent from the days of the Norman Conquest forward. Much confusion has resulted from dwelling upon either Anglo-Saxon or Latin influences to the exclusion of the other. As the Elizabethan masters make clear, both streams flowed into the English mind, uniting in a new language and a new spirit. English was not English and England was not England till this fusion took place. Precisely as in France, North and South were united, and in both cases the result was a new language and a new people, dominated by neither element. A rich line of English and Scotch ballads, primitive and poignant, flowered in the fifteenth century. So did the great Arthurian legend, which originated probably in France and received a noble English setting in "Le Morte d'Arthur" by Sir Thomas Malory.

Owing to the lateness of the Renaissance in England, there were attendant upon its birth not only the great figures of the ancient world but the Renaissance masters of Italy and France, such men as Bruno and Machiavelli, Rabelais and Montaigne. Yet there was little imitation. A vigorous originality spoke from the start. Even the earlier writers of sonnets, Wyatt, Surrey, and Sydney, who drew from the Petrarchan model, discovered a new and wholly English poignancy that reached its perfect flowering in the sonnets of Shakespeare, perhaps the richest and most beautiful web of English words ever woven. This lyric impulse toward brief perfection was one of the strongest of the English Renaissance, and the songs of the Elizabethan

period and the years that followed, in a wide variety of patterns, have never been surpassed. Such men as Drayton, Marlowe, Dounce, Ben Jonson, and Herrick belong with the rarest creators of beauty. It is typical of Shakespeare's extraordinary genius that here, too, he ranked his age; the lyrics of his plays exhibit at their finest the lilting grace and restrained emotion which are the distinguishing marks of the Elizabethan songs. So powerful was the talent that it carried forward to the last of the Renaissance masters, the Puritan Milton, whose moral earnestness could use a technic as sensitive and exquisite as any Elizabethan's.

The other great achievement of the age was the Shakespearian drama, and, while there were lesser figures, it would be idle to pretend that they rank within measurable distance of William Shakespeare (1564–1616). The one man whose line possessed equal passion and beauty was Marlowe, and he died too young to permit the full development of such dramatic talent as he possessed. In the field of sonnet and song, Shakespeare was one among many. In drama he had no rivals, nor comparable predecessors, nor any school that could carry on the tradition of his art. The romantic beauty of the Shakespearian verse is so rich and engrossing that one is in danger of forgetting that the significant greatness of his art was its dramatic quality, ranking him as a supreme genius of the theatre. It was the most stirring and adventurous age in England's history. The vigorous mental curiosity of the period went hand in hand with action overseas and around the world. It was Shakespeare's achievement to express the whole sweep of his nation's greatness in this climactic hour. He used and doubtless felt the loyalties and prejudices of Englishmen of his time. He was too greatly absorbed in the deep and enduring conflicts of the human spirit to be concerned in surface changes. The point of view of Montaigne expresses something of his apparent philosophy, warmed by a humor and

a passion that the French essayist never knew. Shakespeare was a perfect expression of the Renaissance, in the fact that his chief interest was human nature, and it is a tragic paradox of literary history that less is known of Shakespeare, himself, than of almost any world figure. His lifetime of work ranged from the freshness and joy of the early Renaissance to the tragic doubts of its later growth; it is with this latter outlook that his genius essentially belongs.

One strong element in English character found no expression in Shakespeare. That was the spiritual and mystical outlook recorded in the rich tapestry of Spenser's "Faerie Queene," the religious lyrics of Donne, and the magnificent organ tones of John Milton (1608–1674). The former, a contemporary of Shakespeare, for sheer verbal artistry belongs in the first rank, a poet's poet but confusing for the uninitiated. The amazing genius of Milton began in an exquisite lyrical outburst, turned to prose polemics through the years of the Great Rebellion, and ended in the great religious epics, "Paradise Lost" and "Paradise Regained," in verbal felicity as in sweep of imagination to be compared only with Dante. An ardent admirer of Cromwell, a historic champion of tolerance and a free press, Milton stands a great English hero on the side of liberty.

After lyrics and drama, a third great English literary tradition was founded in philosophy. Its forerunners were Dean Colet and Sir Thomas More, pioneers in the Revival of Learning, friends and contemporaries of the great Erasmus. More's "Utopia," a picture of an ideal state, stirred men's minds toward tolerance, and added a word to the English vocabulary to signify an impractical ideal. The great philosophic figure of the Elizabethan Age was Sir Francis Bacon (1561–1626), a universal genius and a master of terse English prose, imaginative and profound. His

"Novum Organum," or "New Logic" (1620), was an epoch-making work in both philosophy and science. His "New Atlantis" continued the speculation about an ideal state which Sir Thomas More started. The Authorized Version of the Bible (1611) was completed in the reign of James I. It was based on many predecessors, on the work of Tyndale and Wycliffe, among others. The result was a masterpiece of English prose. Heir to this great and varied tradition was Sir Thomas Browne, a contemporary of Milton, the builder of majestic periods.

At the end of the period and facing the future stood another great philosophic pioneer, John Locke (1632–1704). Like his countrymen, he was weak in speculative imagination, in the metaphysical approach to the problems of the universe, strong in common sense, in his reverence for facts. He fought valiantly for tolerance in religion and asserted the right of the people, as the only true sovereigns, to govern themselves as they thought best. He was thus the forerunner of Rousseau, and the whole democratic theory was based on his philosophy.

Almost this whole firmament of literary stars rose and set between 1580 and 1680. Only once before, in ancient Greece, was there a century of equal vigor in the art of writing. Milton was the last of the giants. The versatile genius of Dryden, mighty in satire, mediocre in drama, looked toward the next century. John Bunyan was a unique voice of the people, whose "Pilgrim's Progress" helped close the century. Decline had already set in, as the licentious comedies of the Restoration gave evidence. The Renaissance approached its final stage in England in the classic formalism of the eighteenth century, the Augustan Age, of great intelligence and formal beauty. The great thrust of the Renaissance had already passed.

7. SCANDINAVIA

The rise of nationalism in Europe furnished its extreme example in the division of the Scandinavian peoples, all closely akin, into the three independent nations of Norway, Denmark, and Sweden. The three, after a separate history through the Middle Ages, were united in 1397 by the Union of Kalmar. Sweden split off in 1523 and remained a separate kingdom thenceforward. Norway came under Danish control but never accepted her lot. She united with Sweden in 1814 and regained her independence in 1907.

Of the three, Sweden reached her height of power in Europe under the brilliant rules of Gustavus Adolphus (reign: 1611–1632) and Charles XII (reign: 1697–1718). Her territory at its greatest was double that of to-day, and these ambitious rulers gained for her the dubious glory of a great military power. The will of a strong king, Gustavus Vasa, had made the nation Protestant in 1523, and the great campaigns of Gustavus Adolphus on behalf of Protestantism in the Thirty Years' War have already been referred to. The spectacular campaigns of Charles XII, overrunning Poland and marching foot-soldiers and cavalry across a frozen sound into Denmark, were brilliant but unproductive.

No such extravagant ambitions of conquest disturbed the progress of Denmark. Under her greatest king, Frederick II (1534–1588), her ships ruled the Baltic, and foreign ships were forced to strike their topsails to Danish men-of-war in token of their supremacy. These were the years of Tycho Brahe's great researches. The decline of Denmark from her position as one of the great powers of Europe was due in part to her peculiar form of government, an elective monarchy resting on an oligarchy of nobles, that lacked the strength either of a dynastic ruler or a strong peasantry.

8. THE SLOW BEGINNINGS OF SCIENCE

The seeds of the next era were slowly swelling underground throughout this period. At widely distant points, in many countries, isolated pioneers were founding science anew. In the sense that the ancient Greeks had made swift progress in the field of the intellect, and were on the brink of greater advances when Roman practicality and barbarian indifference intervened, and that the intellect now retook this ancient path, the rise of modern science can be regarded as part of the Revival of Learning. But as the word Humanism suggests, the chief interest of the thinkers of the Renaissance, as of the Greeks, was man, and what now took place was the growth of a new interest in the physical world and the pursuit of truth regarding it by those slow and patient methods of experimentation which the Greeks had but begun and which constitute the base of modern science. The Renaissance was essentially an era of exuberant vitality, of adventure, color, and song, which even the reaction of the Reformation toward conscience and faith could not cancel. The scattered scientists worked apart from these excitements, and their advance was as tediously slow as the outburst of the Renaissance was swift. Their accomplishments were the germs of the years to come rather than the flowering of their own age.

The alchemists with their alembics seeking to transmute lead into gold or to summon a sylph or a salamander from the elements were the forerunners of the scientists, a halfway stage between mediæval magic and modern chemistry. Similarly, astrology preceded astronomy, studying the planets for their supposed influence upon human lives. Not until nature was studied for its own sake and man ignored was the true spirit of modern science achieved; incidentally, by thus forgetting himself man through the discoveries of science ultimately accomplished more wonders for himself than alchemists or astrologers dreamed of.

The great scientific names of the Renaissance are few by comparison with the list of poets and painters. But typifying the new method of science that ignored national boundaries and produced a single body of truth from many sources, the six leaders named below represented six different countries, Poland, Denmark, Italy, Germany, France, England.

Copernicus (1473–1543), the Pole, took the first great imaginative leap of conceiving the earth and the planets as revolving around the sun. A single Greek, Aristarchus of Samos (about 250 B. C.), had made the same guess; but the prevailing Greek view was that expressed in the Ptolemaic system that the earth was the centre of the solar system. This was the accepted theory among learned men in the Middle Ages and the Renaissance. It fitted well with the Christian view of man as the final step in creation and the centre of the universe. Not only the appearance of the sun's motion but this traditional wisdom of the Church and all learned men were rejected by Copernicus. The new idea made progress slowly, opposed by the full weight of the Church's authority. It constituted one of the great revolutionary movements in the mind of man, and it would be difficult to overestimate the disturbing effect upon man's faith and philosophy.

Tycho Brahe (1546–1601), a Dane, announced no such startling reconstruction of the universe, but he collected an immense amount of astronomical observations, the first systematic records of the kind made since Alexandria. He had the true modern spirit of patient research, and his records were turned to good account by his assistant, Kepler. From this time forward, scientists were in correspondence with one another all over Europe, their books were printed and circulated, and the spirit of co-operation that has speeded up research and made modern science possible became universal.

The invention of the telescope was the work of Galileo (1564–1642), the great Italian scientist. Lenses had already been used for spectacles in Holland. Galileo applied the principle to a telescope so powerful that he could see the mountains on the moon, the rotation of the sun, and the satellites of Jupiter. With these new-found facts he strongly supported the Copernican system. A powerful and comprehensive genius was Galileo, inventing apparatus of precision in many fields, dropping objects from the Leaning Tower of Pisa to establish the laws of falling bodies, laying the foundations of dynamics and mechanics, writing brilliantly in Italian. He was acclaimed by all learned men, and lived most of his life unhampered by the Church. But a plea for the Copernican theory written in Italian which every one could read brought down the Inquisition upon his head, and he was forced to recant in 1633. He was not, however, tortured or punished, and his scientific researches were not interfered with. Only a generation before, Giordano Bruno, a mystic philosopher rather than a scientist, but an eager follower of Copernicus, had been burned at the stake for similar convictions. But he was a monk and a fiery critic. Rome was still a long distance from toleration of such rebellion. Blindness came upon Galileo in the last five years of his life, and it was Galileo blind whom Milton visited in Italy, himself destined to meet the same cruel fate.

The German astronomer Kepler (1571–1630) advanced the Copernican system to a new accuracy, discovering the fact that the orbits of the planets were not circles, as Copernicus believed, but ellipses, and formulating three laws of the solar system that still bear his name.

All this gradual astronomical progress led to the culminating achievement of Sir Isaac Newton (1646–1727), whose long life bridged the transition from the slow beginnings of science to the full sweep of its modern progress.

It was in 1686 that his famous "Principia" was published, in which he formulated the law by which every particle of matter attracts every other particle "with a force varying inversely as the square of their mutual distances, and directly as the mass of the attracting particle." A number of his predecessors had conceived such a force. He was aided by half a dozen contemporaries, who contributed to his study. His labor of genius was the discovery and establishment by mathematical proof of the one simple physical law by which the whole universe, the earth revolving about the sun, the moon revolving about the earth, a pebble falling to a beach, is governed. The magnitude of his discovery was not at first appreciated, but his work gained an extraordinary vogue in the eighteenth century, and his discovery has been generally regarded as the greatest single feat in the history of science.

By this time the full tide of scientific progress, borne along by the co-operation of many investigators in every nation, was at hand. The Royal Society was founded at London, as a means of co-operation among scientists, and the "Principia" was one of its early publications.

Two thinkers remain to be mentioned whose contribution to science was theoretical rather than practical. Sir Francis Bacon was a contemporary of Galileo and keenly interested in the progress of science. But he was concerned in the methods of scientific research rather than in the labor of research itself. He never applied the methods of experimentation and induction—that is to say, the ascertainment of a great mass of particular facts and the drawing therefrom of a general law—which he was the first to advocate. Nor, as a matter of fact, have the main advances of science been achieved by this method; commonly progress has come through an imaginatively conceived hypothesis checked and corrected by experimentation, involving deduction from general principles rather

than induction. To call Bacon the father of modern science, as has been done, seems a gross exaggeration. The most that can be said is that his works stimulated the zest for facts, and helped establish the new spirit of scientific research which rejected Aristotle's dicta for a fresh study of natural phenomena.

Descartes (1596–1650) worked a generation later, a Frenchman by birth, a Hollander by residence for the greater part of his life. He was a true scientist in the field of mathematics, and his discovery of analytical geometry aided Newton a half-century later. But it was as a philosopher that Descartes gave his most distinguished aid to science and earned a rank as one of the greatest minds that France has produced. He started with the famous sentence, "Cogito, ergo sum" ("I think, therefore I am"), and built up a theory of the universe consistent with the new spirit of science which treated all physical phenomena as if they were governed by laws. It might be said that he viewed the universe as a machine created by God. His most famous book, "Discours de la Méthode," was inspired by a dream which he had in his twenty-fourth year when a soldier in the Thirty Years' War. He saw the whole future of knowledge spread out before him, and he spent the rest of his life in seeking to work out this picture by thought. In a true sense he was the founder not of modern science but of the modern approach to the universe.

CHAPTER XX

THE AGE OF SCIENCE AND DEMOCRACY

No precise line can be drawn separating the period of the Renaissance and its classical decline from the new age in which man now lives. The forces of the two eras existed side by side for a century and more. As has been said, such a division has no real existence, but is simply a convenient means of assembling and stressing the dominating characteristics of a period. Nothing could be clearer, however, than that the eighteenth century witnessed another great and creative outburst, suggestive of the twelfth and fifteenth centuries. The parallel can be carried forward

with some accuracy and the nineteenth century compared to the thirteenth and sixteenth centuries, in that it applied and developed the ideas and movements originated in the preceding century. If the same analogy were to be pushed yet farther, the twentieth century might be regarded as a century of decline, of weakening forces, and confusion. But centuries are not subject to such neat classification, and historical analogies are as dangerous as they are tempting.

Science and democracy have been the two basic forces of the eighteenth and nineteenth centuries. It can be argued that of the two, science was the more fundamental. Perhaps, when a fuller perspective is possible, the present era will be regarded as the Age of Science. But the events are too close for such philosophizing. As a matter of fact, the word science is itself misleading, for the stress at the start is rather upon invention than pure theory, and invention has not borne a close relationship to pure science until recently. The inventors have usually been a different type of man from the scientists. Furthermore, democracy must stand for an idea, an inspiring goal, rather than a fact; the visible signs of its expression were the great revolutions, political and social. To be more objective and concrete, these centuries might well be labelled The Age of Invention and Revolution, or The Age of the Machine and the People.

The eighteenth century was one of the most interesting periods in the world's history. It began in a delightful atmosphere of formal classicism and aristocratic charm, a civilization that was dying gracefully. Its men and women, its benevolent despots and its Voltaire, its Fanny Burney and its Dean Swift, live in its books as from no other age. It ended in France in an outburst of bloodshed and romanticism, of emotion breaking every conventional rule of government and art and echoing throughout Europe. Meantime, from the start science and invention marched quietly forward to effect a remaking of society and its manner of

life. England led in this industrial revolution, which began before the French political Revolution, and continued long after it, and which, for all its inconspicuousness, rivalled that great overturn in importance. It laid down the physical conditions under which the nineteenth century developed. In so far as a date is of aid in defining a period, the Congress of Vienna in 1815 is often taken as the terminus of the first act of the modern drama. This earlier century saw the rise of two new powers, Russia and Prussia, and the destruction of one, Poland, by partition.

Thereafter the nineteenth century in general applied what had gone before. The speed was so great and the accomplishments so vast that the century has been called the "wonderful century." Certainly the progress in science, pure and applied, ranks as one of the greatest feats of the human intellect. Material is the word often applied to this civilization, yet the human mind has never achieved equal progress. The material achievements, in machines multiplying comfort, convenience, and communication, outran man's ability to organize the society which they have produced. In this sense the material gains may be said to have overborne the intellectual and spiritual. Yet from the French Revolution onward, the fate of the common man became increasingly the centre of interest. First his civil rights, then his political rights, and, finally, his general welfare—his education, his wages, his health—have become subjects of governmental concern. Democracy is a convenient name for this general tendency, which has gone far beyond the old conceptions of political democracy and touched industry and society. Humanitarianism is, perhaps, more suggestive of this point of view that regards mankind as the chief concern of man. The world became smaller and smaller as means of communication increased, and the rise of world commerce developed world politics, in which the quarrels over colonies and markets

became more tense than ever. With the arrival of America, Japan, and China upon the world scene, the final stage of world history, the Pacific, succeeded to the Atlantic, which had in turn succeeded to the Mediterranean.

I. THE RISE OF MODERN SCIENCE

Pure science inspired the intellectual growth of this age. Applied science erected its physical background. Both ideas and economic facts were potent forces, and, despite the contemporary tendency to stress the supremacy of economic forces, no means of weighing the two elements are known. The political and the artistic history of these centuries can best be portrayed against this significant background of minds and machines.

Invention can be regarded as no more than applied science, yet it made its early advances independently of science. Printing from movable type, one of the most important of all inventions, was developed without the aid of science in the modern sense. The mind of the early inventor was mechanical, and imaginative, concerned not in general truths but in devices producing specific results. Since then invention has become increasingly related to science, as the acceleration in the process of invention records. The inventions or discoveries during all the centuries prior to 1700 are far less numerous than those of the eighteenth and nineteenth centuries; and the last decades show a swiftly increasing list of wonders.

The two fundamental sciences, physics and chemistry, were almost entirely new creations of the eighteenth and nineteenth centuries.

The founder of modern chemistry was a Frenchman, Lavoisier (1743–1794), who, using the researches of many others and insisting upon the precise weighing of masses, determined the principle that while matter can be changed in its chemical composition, by fire, for instance, it can

neither be created nor destroyed. The next great step was taken by John Dalton (1766–1844), an Englishman, who conceived the first scientific hypothesis of the atom as a subdivision of the molecule. The conception of matter as made up of small separate particles called atoms, rather than uniform and continuous, was the speculation of Democritus, in the fifth century B. C., one of the greatest of the Greek philosophers. It was restated by Lucretius, and has become the prevailing view. But these early atomists were simply making magnificent guesses; they had no experimental basis for their view. By the eighteenth century enough facts were known to yield a helpful hypothesis of atom and molecule, the former being conceived as the smallest unit of matter, the latter as a collection of atoms and the smallest particle into which a substance, either an element such as lead, or a compound such as water, could be divided without losing its identity. Proceeding upon the basis of this hypothesis, chemistry applied itself to changes within the molecule, leaving to physics the processes which do not disturb the composition of the molecule. A long line of investigators in the nineteenth century worked out the atomic theory in great detail and discovered many elements. By the aid of the spectroscope, perfected in the early nineteenth century, the analysis of distant suns was made possible and the unity of the universe in the matter of its elementary substances was established. Finally, in the twentieth century, scientists discovered that the atom was not the hard, indestructible thing which Dalton supposed it to be, but itself underwent transformation as in the phenomena of radioactivity. The hypothesis of the atom, which had served so long and usefully, was modified in this respect. The hypothesis of the molecule has been even more radically attacked. Because of the new knowledge of the atom, the ideas of molecules and the molecular reactions current among chemists even a few years ago are now undergoing

searching revision. The older distinction between chemistry and physics no longer holds. The changes form an excellent example of the tentative character of every so-called law of science. The most serviceable hypothesis of the atom at the present time would view it and all matter as a phenomenon of electricity, perhaps, in still further analysis, as a kind of radiation like light. The atom is conceived of as composed largely of small units, called electrons, moving about a nucleus—the nature of which is in doubt—within the confines of their incredibly small system somewhat as the planets move about the sun in theirs. But this hypothesis is now under active examination, and suspended judgment is the only truly scientific attitude toward it as toward so many other scientific hypotheses.

This interpretation of matter in such terms is the work of physicists as much as of chemists. In fact it is impossible to say in which field of science radioactivity belongs. Physics was the old name for all science; various fields, like geology and chemistry, were fenced off; but as the development of the theories of radioactivity has made clear, these divisions of science are artificial, and science is really one. As physics developed in the eighteenth and nineteenth centuries, it became confined to the study of matter in motion, and included specifically the subjects of mechanics or dynamics, heat, light, and electricity. Mechanics was one of the earliest fields of observation by reason of its practical value. The Greeks studied hydrostatics and the principles of the lever, for example. Not till Galileo was progress in the investigation of energy and motion resumed. Newton's discovery carried on the work. One of the greatest scientific discoveries of the nineteenth century was the determination of the law of the conservation of energy through the work of a Frenchman (Carnot), an Englishman (Joule), and a German (Helmholtz), culminating in the year 1847. This was as basic a law of

nineteenth-century physics as the indestructibility of matter was of chemistry in the same period. Energy could be transformed—as by friction into heat, or by heating water in a boiler into the motion of a steam-engine—but energy could neither be lost nor created. It remained unseen until it changed its form, and whether seen or unseen it was indestructible. The theory of heat as a motion of molecules dated from the same period as this theory of energy. The law of the conservation of energy is now gravely doubted and new conceptions and new theories are preparing the new hypotheses or laws of the present advance.

These same fertile years of pioneering yielded the wave theory of light. Till then light had been regarded as composed of minute corpuscles emitted in straight lines by luminous bodies. An Englishman, Young, put forward in 1801 the theory that light consisted of vibrations of an all-pervading substance, distinct from matter, having neither atoms nor molecules, and imagined for the purpose of this hypothesis. This supposititious substance was called ether. No conclusive proof of its existence has been produced; but the conception fits many of the known facts of light, and by its use in investigation and deduction much ground has been gained. It offers a perfect example of the function of a hypothesis. Much misunderstanding would be avoided if every one regarded all scientific "laws" as no more real and no closer to final truth than this ingenious human imagining of a luminiferous ether which no man has ever touched or seen or weighed, but which has been enormously valuable to the scientific study of the universe.

It was not till 1850 that this undulatory theory of light was established and generally accepted. Meantime, the study of electricity had developed a similar hypothesis. The phenomena of electricity had long been observed. The versatile mind of Benjamin Franklin (1706–1790) contributed a number of valuable conclusions, including the famous

demonstration by sending a kite aloft in a thunder-storm that lightning was electricity. The great pioneer was Faraday (1791–1867). Gradually thought turned away from the old theories of electricity as a fluid to the modern conception of it as undulations of some medium. An electrical ether was conceived similar to the luminiferous ether, and Maxwell (1831–1879) produced evidence for the simple conclusion that both electric phenomena and light were due to waves in the same medium, the light waves simply being more rapid than the electric. A German physicist, Hertz (1857–1894), confirmed this theory by a series of brilliant experiments. Wireless telegraphy, wireless telephony, and the radio—the broadcasting, without wires, of music and speeches—use varying wave-lengths of the same electrical waves. The name of radio refers to these radiant waves; it does not mean that radium or the electric waves produced by radioactive substances are involved. When it is added that this whole wave theory has recently been gravely questioned, the swiftly changing outlook of twentieth-century science and the tentative character of its hypotheses can be understood.

It was in the last years of the nineteenth century that the revolutionary discoveries of radioactivity took place. In 1895 a German physicist, Röntgen, discovered mysterious rays like light which had the power to pass through opaque substances. He called them X-rays, and their use to secure shadow-pictures of the interior of the human body has since become a commonplace of medical diagnosis. As in all modern scientific progress, a host of investigators aided, and the names mentioned are simply those who happened to take the more conspicuous steps. It was soon discovered that a number of substances gave off emanations having similar properties. Following this clue discovered by Becquerel, Pierre and Marie Curie isolated the new element, radium, in 1898. It is exceedingly rare, and gives

off emanations including rays similar to X-rays but of much greater penetrating power. Madame Curie worked on the hypothesis that these phenomena, now known as radioactivity, were the result of atomic changes, and this theory has since been widely accepted. Two English physicists, Rutherford and Soddy, have worked out a hypothesis known as the "Transformation Theory," now generally accepted, according to which the atoms of radium and similar substances undergo a spontaneous atomic disintegration, from which other radioactive substances are produced and which, in turn, break down. The process of transmutation of metals, which the alchemists sought, is thus taking place spontaneously in the case of these few substances. These discoveries have led to much far-flung speculation. The whole theory of matter and energy is being reconsidered in their light. Since great energy is exerted when a radium atom sends out its emanations, it has been argued that vast new sources of power have been discovered. Radioactivity has been viewed as a source of the sun's power, and the life of the universe in the past and for the future has been correspondingly lengthened. Along these paths of research lie fruitful fields of study. But never was there greater need of maintaining an attitude of philosophic doubt than toward these new hypotheses. The atom was purely a mental conception which aided chemists to achieve marvels of analysis. It still exists as a conception, but scientists have now broken up atoms, and thus revised its nature. They have found within the atom electricity, which is merely a name for another mystery. The physicists have used the conception of ether in their labors with equal success. But it remains a hypothesis of lessening service. It can be seen that the brilliant progress of these two fundamental sciences has been based on a succession of hypotheses, and the truly scientific mind must hold itself free to transform its views as new con-

ceptions appear in the future. Never was it clearer than to-day that the marvellous progress of science has constantly developed new problems, and that the total of this modern wisdom is no hoard of bright and shining coins, but rather a series of dissolving views, as when stronger and stronger telescopes reveal more and more intimate pictures of distant stars.

A new science of geology originated in the eighteenth century, and the oldest of sciences, astronomy, collaborated with it to conceive the arrival of the solar system as an orderly process of change from nebula to planets. The new science of biology, born in the nineteenth century, utilizing the resources of geology, of chemistry, botany, and zoology, traced the development of life from protozoon to man. In this fusion of new wisdom into what is commonly, though loosely, called the theory of evolution the service of Charles Darwin (1809–1882) was to provide the specific theory of natural selection, or the survival of the fittest, as a central explanation for the evolution of living things.

An Englishman, James Hutton (1726–1797), was the founder of modern geology. Before him, theories of the growth of the earth had conceived it as formed by a series of cataclysms. His service, aided by other observers, was to perceive that the earth had been shaped with inconceivable slowness by rain, rivers, and similar every-day forces. No radical revision of this theory was necessary; but it has been supplemented by theories of the origin of the earth which regard it as having been once a nebular and later a molten mass, and by the discovery of gradual but none the less extraordinary episodes like the Ice Ages. Hutton looked for confirmation of his views in fossils, and early in the nineteenth century another Englishman, William Smith (1769–1839), surveyor by profession but a true scientist in the accuracy of his observations, brought forward proof of the stratification of rocks. Naturalists like the French-

men Lamarck (1744–1829) and Cuvier (1769–1832), who devoted much of their lives to the study of fossils and the founding of paleontology, aided in this geological progress. Without these relics of the past the progress of geology, as of biology, would have been greatly handicapped and retarded. Just as the Copernican theory fundamentally altered man's point of view, so the new geology challenged old conceptions by lengthening the life of the earth far beyond the 6,000 years allotted in the Bible, or the figures of other traditional versions of creation. It created a basis which made the slow processes of Darwinism conceivable.

Stirring and revolutionary were these years before and after 1800 when man's whole conception of his home was transformed. It was in 1796 that a French astronomer, Laplace, put forward the nebular hypothesis. He had done distinguished work in completing the proof of the solar system. This casual suggestion conceived of the solar system as starting from a vast nebula in slow rotation. As it cooled, it threw off a series of rings which became the planets. The great German philosopher Kant (1724–1809) had conceived a nebular origin in 1755. But the Laplace picture attracted the attention of scientists, and it was not until recent years that an alternative theory, the planetesimal hypothesis, based on a tidal eruption through the near approach of two suns, of Professors Chamberlin and Moulton, of Chicago University, has gained support. Highly speculative as is the nebular hypothesis in any form, and necessarily lacking in scientific proof, it played a stimulating part in the imaginations of the nineteenth century.

A vast amount of solid scientific work was done in astronomy through the co-operation of many observers which the modern spirit of science has made possible. The most famous episode was the discovery of the planet Neptune in 1846 at the place in the heavens where a French astronomer, Leverrier, calculated it should be on the basis of pe-

culiarities in the orbit of Uranus. An extraordinary accuracy has been achieved in measuring celestial distances, and it was through the refinements of stellar photography that apparent confirmation of the Einstein theory of relativity was obtained in 1919. This modification of Newtonian theories of space was suggested by certain discrepancies observed in the orbit of Mercury. It includes such difficult conceptions as curved space and a finite universe. Much of its content can be understood only by an expert mathematician, and it still belongs in the realm of new and highly controversial hypotheses. It is another illustration of how far from finality are the most substantial of scientific hypotheses, even those so well established as to have received the misleading name of laws.

The science of living things was another creation of the eighteenth century. The Middle Ages had been satisfied with fantastic fairy-tales about animals, based on folk-lore, and often having a religious or symbolic meaning. Thus the salamander, which was so cold that it put out a fire if it fell into it, symbolized the saint whom hell could not burn. Some progress had been made through the ancient science of medicine, which the Greeks studied and the mediæval and Renaissance doctors practised, but with scant progress in fact or theory, from the time of Hippocrates, the Greek. A pioneer observer in the scientific spirit was William Harvey (1578–1657), an English physician who discovered the circulation of the blood by adhering to the true doctrine that wise men must learn anatomy not from the decrees of the philosophers but from the fabric of nature herself. The eighteenth century saw a long line of naturalists who observed painstakingly and well—men like Sir Gilbert White, of Selborne (1720–1793). The ancient idea of evolution appealed strongly to the line of philosophers, to Descartes, to Leibnitz, Spinoza, Hume, and Kant. It found expression in the greatest of German poets, Goethe (1749–

1832), as it had in Lucretius. As a subject for speculation the theory was common property and in the front of reflective minds by the eighteenth century. Among the pioneer scientists to study the evidence was Lamarck (1744–1829), a French naturalist, who worked out a theory of organic evolution based on two propositions which have already been set forth: one, that animals developed their variations by use (*e. g.*, the giraffe acquired his long neck by efforts through generations to eat leaves above its head), and, two (necessary to make the first proposition effective), that characteristics acquired during the lifetime of a parent are inherited.

Thus when Charles Darwin began his years of patient study, the results of which have been outlined in the story of evolution, the conception of organic evolution was a familiar one, and the Lamarckian theory of how it operated was under debate. The "Origin of Species" was published in 1859. It was in 1838 that the first thought of natural selection flashed across his mind, suggested by Malthus's work on "Population" describing the struggle for existence among human beings. Before that he had studied the methods of animal-breeding by which stock was improved by careful selection, and was searching for an equivalent factor in nature. The twenty years between he devoted to untiring study of the evidence. "Dogged does it" was one of his favorite mottoes. Darwin did not reject the Lamarckian method in all cases. He also recognized the value of sudden variations known as "sports." But he regarded natural selection between minute variations through the struggle for existence as the chief source of evolution, and he presented such a mass of strong evidence for his view that, for the first time, the theory of evolution received solid, scientific support.

The publication of the "Origin of Species" thus marked a new epoch in scientific thought. The theory of organic

evolution has since gained general credence among scientific men. Nor has the theory of natural selection been overthrown. Its importance has, however, been lessened by a number of discoveries. Chief among these were the researches of De Vries, a Dutch botanist, and others who demonstrated that extreme variation producing "sports" was frequent enough to account for evolutionary development. This view accepts the Darwinian hypothesis of natural selection, but applies it normally not to minute variations but to sudden leaps. This modification of Darwinism would speed up the process of evolution and fit it better to the time schedule of geology. Another debate has centred about the Lamarckian theory that acquired characteristics are inherited. The evidence thus far is against such inheritance; yet scientists have been slow to assert this negative, and the question is still open. In fact, the whole machinery of organic evolution remains in a state of uncertainty. The Darwinian hypothesis, so far from being the last word, was hardly more than the first. A vast amount of research remains to be done before the various means, including natural selection, by which evolution is achieved, can be weighed and determined. The theory of organic evolution rests on a broad base, including evidence from many sources. How it works, still remains a subject for scientific scepticism. In the general progress of biology, one other basic discovery of the nineteenth century was the cell. This was a slow development, the work of many minds, completed by the middle of the century. Through the study of this unit of life—protoplasm is the name given to the living matter of a cell—extraordinary progress has been made toward understanding the chemistry of life. Yet the complicated structure of protoplasm defies artificial composition. The secret of life remains hidden.

The ancient science of medicine, founded by the Greeks, maintained by the Arabians, and, after a period of decline,

carried forward by the anatomists of the Renaissance, entered a new era through the researches of the chemists and biologists of the last two centuries. The discoveries of fact have gone far ahead of its curative methods, still largely empirical and unsatisfactory save in the field of preventive medicine and surgery. After Harvey the great landmarks were the discovery of vaccination as a preventive of smallpox by the English physician Jenner, in 1796, and the development of the germ theory upon the pioneer labors of Pasteur (1822–1895), the great French biological chemist. The germ theory was applied to antiseptic surgery by the British surgeon Lister, and to the prevention or minimizing of a number of diseases by the use of antitoxins, as in the case of diphtheria, or in the case of yellow fever, by the elimination of a mosquito carrier of the specific germ.

Many other sciences originated in those centuries. None of them has yet achieved a secure footing. Economics or political economy was largely an English development culminating in the Utilitarian or Manchester school of thought which controlled the financial and commercial policies of Great Britain, and influenced the economists of the world for generations. Three major names mark its rise, Adam Smith (1723–1790), Bentham (1748–1832), and John Stuart Mill (1806–1873). Smith, though not the originator of political economy, was its first great mind. His theories, expressed in "The Wealth of Nations," laid the foundation for the faith in natural liberty and the system of laissez-faire which became the economic creed of England. Bentham was a philosopher and no economist, but he contributed to English thought the theory that the goal of society should be "the greatest good for the greatest number." He did not coin this conception but he gave it circulation and in a broad sense all the later developments of modern democracy proceeded from it. Mill deserves no-

tice not only because he gave authoritative statement to the Utilitarian point of view, but because he typified much of his age in England. His life spanned the gradual shift from laissez-faire to humanitarianism.

Just as Darwin was the son of a distinguished scientific father, so John Stuart Mill was the son of an able historian and philosopher, a strong Benthamite. He was taught Greek at the age of three, and had read Æsop, Xenophon, and Plato at the age of eight, when he began Latin, Euclid, and Algebra. But he was never an exact scholar of the classics—it was for the subject-matter that he was trained to read. Stemming from this intellectual aristocracy of England, of striking personality, master of a clear and persuasive style, he became a commanding figure of his time. Utilitarianism is a misleading term for the philosophy of economics to which he gave final statement. No materialistic standard was set up. The Bentham goal, "the greatest good for the greatest number," was sought by the path of self-interest, competition, and the law of supply and demand, freely working. Mill expounded these so-called laws of political economy with brilliant logic, but he lived to welcome their modification in the name of human liberty. The motive of his thought was moral, his sympathies were generous. Despite his logic, he became increasingly the advocate of the distressed and must be ranked as a great pioneer of modern social and political thought. The factory legislation, which will presently be described, derived from the sympathies of Mill if not from his logic.

Two lesser names have their place in the development of English economic thought, Ricardo (1772–1823) and Malthus (1766–1834). The former originated theories of rent which like all these early economic generalizations have been largely discarded. The latter fathered a theory of population which had a prolonged influence upon British thought. The Malthusian theory took count of the

swift increase of population which marked the industrial rise of the late eighteenth century in England and asserted the law that while human beings multiplied in geometrical progression, the food supply could be increased only in arithmetical progression. The gloomy conclusion of this theory was that wage increases and charity were a mistake and that the threat of starvation was the only hope of the world. From such pessimistic economists came the designation of political economy as the "dismal science." Time has shown the Malthusian theory to be utterly unfounded. It has been abundantly proved that higher wages, increased comforts, and general well-being are a strong and probably sufficient check on large families. There could not be a better illustration of the danger of attempting to predict the future of society by sheer logic. Malthus based his theory on the past. He failed to imagine the human factors which were soon to become controlling and overturn all his predictions. Life holds perpetual surprises of this nature.

Little of this premature generalization by the early economists has stood the test of research. In the last generation an effort has been made to rebuild economics from the ground up, on the basis of statistics. Considerable progress has been made, but the science is still in its earlier stages of research. In psychology, while some experimentation and much interesting speculation have taken place, the difficulties of the subject have prevented agreement even as to a method of approach. Sociology and anthropology, among the newest of sciences, have made even less progress. The data of human actions and customs are exceedingly difficult to observe. Anthropologists have thus far devoted much of their time to speculative theories. Archæology has furnished much raw material for both anthropologists and historians. Its spirit of patient digging might be recommended to workers in all the new sciences which have been handicapped by a plethora

of theory and a scarcity of facts. All these sciences are contributing to the data of modern history, a creation of the nineteenth century; but history, itself, remains as it began, essentially an art, not a science. Starting with myths, passing through the theological stage—the Augustinian, for Christians—when the past, like the physical world and the future was arranged about a creed, history felt the force of all the tendencies of the nineteenth century. It passed through a romantic period when great men were exalted as the essence of the past; the dramatic and vehement Carlyle (1795–1881) was the greatest of these hero worshippers. Then Buckle's "History of Civilization in England" (1857) turned minds toward the economic interpretation of history by stressing the effects of the material world, of food, soil and nature, in general, upon man. This has remained the controlling point of view down to the present. Yet this materialistic view of the past has been recognized as partial and unsatisfactory. Plainly a rounded historical method, giving due weight to every side of man's nature, must wait upon progress in psychology and other immature sciences; which is to say that the final history of any period or any people is still afar.

If no other achievement were to the credit of these two centuries than this progress of pure science, they would rank with the most extraordinary centuries in all history. In fact, it may well be doubted whether any discoveries save the elementary ones like fire and the alphabet are to be compared in importance with this vast accomplishment of these scientists. With the aid of them an endless chain of invention is possible. Without them, material progress would depend upon chance hits. The labor was the work of many, it crossed the boundaries of nations and of languages and it never halted.

Four major peaks of achievement can be distinguished. Newton's discovery of the law of gravitation (1686) was

the first. Its echoes reverberated throughout the eighteenth century, toward the close of which another great era of scientific discovery arrived. The co-operative spirit was clear by this time, and the decades on either side of 1800 saw achievements by many, including the founding of modern geology by Hutton, the chemical discoveries by Lavoisier, the nebular hypothesis of Laplace, and Lamarck's theory of evolution. Fifty years later, in the heart of the Victorian Age, the epochal work of Darwin came as the climax of a group of major discoveries, including the statement of the law of the Conservation of Energy. Finally stand the revolutionary discoveries of the twentieth century, especially the invasion of the atom, a period of far-reaching discovery in which we still live.

If new mysteries have appeared as each curtain of ignorance has been pushed aside and the early hopes of a complete explanation of the universe have been dashed, man has at least thrown his thought around the farthest star, and stands before a far clearer picture of his world than ever before. That picture is one of universal law. Science reveals neither the source of this order nor its purpose—it is silent as to whether there is a source or a purpose. It does, however, present a world as majestic in scale as it is united in essentials.

2. INVENTIONS AND THE INDUSTRIAL REVOLUTION

The revolution that science worked in man's mind the great inventions expressed in his external manner of life; and since actions form character, these changes in customs inevitably reacted on mind. Mentally and physically, these two centuries witnessed one of the epochal transitions in the life of man. Yet the transformation of the physical scene has been so great that there is probably danger of overestimating the extent of the changes in man himself. The continuity of man's development survived centuries

of conquest, torture, and pestilence; there is no reason to suppose that it is not surviving factories, cities, railways, telephones, automobiles, aeroplanes, and radios.

The inventions of the eighteenth and nineteenth centuries are as amazing as an "Arabian Nights'" tale. The following list of typical inventions gives the date of invention and the name of the inventor. Usually several decades passed before a machine came into general use. In every case the successful inventor was preceded by earlier men who failed by a narrow margin. In a number of cases it is difficult to award final credit to any one name.

Spinning-jenny	1764	Hargreaves
Spinning-machine	1769	Arkwright
Steam-engine	1769	Watt
Power-loom	1784	Cartwright
Cotton-gin	1792	Whitney
Steamboat	1807	Fulton
Steam-railway	1814	Stephenson
Telegraph	1835	Morse
Bessemer steel process	1856	Bessemer
Electric light	1870–1878	
Telephone	1876	Bell
X-rays	1895	Röntgen
Automobile	1890–1900	
Aeroplane	1903	Wright Brothers
Wireless		Marconi
Radio broadcasting		

The inventions of these two centuries fall into three general classes. They increased production in industry by substituting machines for handwork; they accelerated transport and communication; or they increased health, convenience, comfort, luxury. Some inventions, like the telephone, belong in all three categories. All united in effecting the industrial revolution which began in England in the last quarter of the eighteenth century and is still spreading around the world. This revolution was no swift change,

completed in a few years, like a political revolution. It was and is a long and continuing process, advancing at different speeds in different countries, and reaching conservative China, for example, only to-day. The essential feature of the factory, quantity production, has recently been developed to a new height in American mass production that constitutes the latest stage in the industrial revolution, with social and economic consequences still to be determined.

As the above list of inventions discloses, the first inventions came in the cotton and wool industries, and spinning and weaving first felt the effects of the change. These early inventors were all Englishmen, and England led the world in introducing the new order, thereby gaining an industrial and financial head start over the rest of Europe that brought her in the nineteenth century the financial leadership of the world.

On the economic side the changes were striking and advantageous. The wealth of England was greatly increased. Her population doubled in seventy years and her merchants led the commerce of the world. Great cities sprang up around the factories, the outward emblem of the industrial era. The enormously complex organization of modern society began to develop whereby the old self-subsisting village units growing their own food and making by hand in small shops the clothes and other necessaries of life were destroyed, and large, highly specialized communities succeeded them, manufacturing in quantity one or a few products, which were shipped afar and thus exchanged for the varied needs of life. The development of railroads was an essential link in this new organization. They had been preceded by turnpikes and canals. It was around the middle of the nineteenth century that the building of railways became rapid. Ocean steamships built of iron became effective carriers of cargo a decade later.

The human story of the industrial revolution had a dark beginning by comparison with the brilliant economic success. The mere dislocation of the social organism which machinery produced caused great hardship. Villages decayed, cities sprang up, ill-ordered and unhealthy, unemployment was chronic. In addition, the laissez-faire theory of government and economics which prevailed in England permitted a terrible abuse of the factory workers. Men labored at Manchester from twelve and one-half to fourteen hours a day as late as 1825. Children worked in cotton-mills from 5 A. M. to 8 P. M. Some of them were under five. Many were pauper apprentices, bound to labor till twenty-one for their food and lodging; in effect, slaves. Long hours of labor had been the rule for centuries, and it is not fair to judge these days by modern standards. But most of the factory-owners felt no humane obligation to care for their laborers; though the old-fashioned, independent worker had a long working-day, he was master of his own day and suffered neither from rigid control nor exploitation by a greedy employer.

Relief came from two sources—from humane laws and from the organization of unions. The British Factory Act of 1833 was a landmark of social reform. It cut the working-day of children under eighteen to twelve hours a day. A long line of protective legislation followed. Trade-unionism dates from 1825 in England, but it did not become effective till several decades later. The first unions were secret organizations and were bitterly fought by employers and the government. The decade beginning 1840 was one of great hardship and starvation. Thereafter came prosperity, and the lot of the British worker has unquestionably improved greatly in the nineteenth century. Hours have been shortened and it has been estimated that since 1830 wages have doubled. After a dismal and tragic beginning, lasting a century, the increased wealth produced by machin-

ery has now for another century been increasingly shared with labor.

One unfortunate accompaniment of the rise of industry in Great Britain has been the increasing hardship of rural life. The century from 1750 forward saw the final decline of open-field farming upon a communistic basis, which had been part of the old village and manorial system of England, and the rise of the modern system of enclosed, privately owned farms. Each villager owned a farm, but it was composed of strips scattered in great fields—of rye, of oats, of wheat—and these fields were tilled jointly by all the farmers working together. There were also the common lands where all the live stock grazed together. The old system was inefficient, for the good farmer could not reap the results of his own industry and skill. Community planting and grazing delayed improvement in agricultural methods. "Enclosure," the method whereby fenced farms were formed, began in the sixteenth century through the great increase in the sheep industry. It was resumed in the eighteenth century as part of an agrarian revolution which applied modern agricultural knowledge to farming, largely dispossessed the small landholder, and, while greatly increasing the national output, caused wide-spread suffering and hardship and depopulated whole villages. The parallel with the industrial revolution is clear. Unfortunately, the remedy has been less satisfactory. Many laws have been passed in an effort to better the lot of the farmer, but he has not fared as well as the factory workers grouped in large cities, and more easily organized to insist upon their rights.

The story of Great Britain's industrial revolution was repeated later in France, in Germany, in the United States, throughout Europe. It began at different times in different countries, and no uniform rate or manner of change prevailed. Germany, for example, remained a peasant na-

tion until after 1870, when her industrialization was accomplished with amazing swiftness and efficiency. Her population increased rapidly, as had England's. Instead of blundering through hardships toward prosperity, government regulation saw to it that the new order developed with a minimum of dislocation. Science as applied to industry reached new levels of effectiveness in the German technical schools. The prosperity of the peasant was protected by effective legislation. Under the genius of Bismarck, the laissez-faire policies of England were rejected, and governmental regulation provided the most enlightened aid—for worker and capitalist alike. The industrial revolution entered France slowly, and the nation has remained a self-subsisting unit, balanced between agriculture and industry, with the peasant still a powerful factor. Her population has increased little. America has reached the point where her farming, long her chief industry, is being passed by her manufacturing. The problem of maintaining the prosperity of her agriculture is already at hand. The revolution has touched the barbarian regions of the world only as it has brought the strong arm of the colonizing powers among them to secure raw materials in ever-increasing quantities. Here, too, the machine first wrought cruelty and hardship, and only recently has a more humane spirit begun to develop. Industry, itself, has now begun to enter the most advanced nations of the East—Japan, China, and India. Its effects remain to be seen. In Europe the revolution has touched only scattered areas of such isolated and conservative nations as Spain and Russia.

The machine produced its political reaction in socialism. The first stages of the doctrine appeared in the 1830s, in France and England, among idealistic thinkers whose Utopian theories caused such distant echoes as the Brook Farm colony in America. It took definite form in its second phase and became a powerful political force in Europe

under the inspiration of Karl Marx (1818–1883), whose famous pamphlet, "Communist Manifesto," appeared in 1848. He brilliantly upheld the view that a class struggle exists between workman and capitalist, and that it can be solved only by the creation of a Co-operative Commonwealth in which all productive capital is owned by the state. He urged working men to unite regardless of national boundaries, and he drew up the constitution of the first International, which was formed at London in 1864. Strong socialist parties developed in Germany, France, and other European countries, and the Labor party in England adopted much of its point of view. The third phase came with the theory of direct action, in the form of syndicalism in France before the Great War, and of Bolshevism in Russia during the War. This view adopted socialism as the goal, but stressed direct, non-political methods of achieving it. The Bolshevist dictatorship of a minority first installed Marxism in a great nation. In most other nations, while the central tenet of socialism, state ownership of productive capital, has been rejected, much legislation of socialistic tendency has been passed. Privately owned property affected with a public interest, like railroads, has been so regulated as to rates, etc., as seriously to reduce its freedom of action. With the failure of state socialism in Russia, it may fairly be said that pure Marxism has made little progress, and that its chief influence has been to strengthen the state's control of private property.

Popular education and woman suffrage were two more developments in the wake of the industrial revolution. The real emancipation of children in England began in 1876, when reading, writing, and arithmetic were made compulsory for every child. France followed a decade later. The German Empire had preceded both England and France in abolishing illiteracy. The percentage of those who cannot read or write is still high in such countries as Spain and

Russia. It is considerable in the United States. The woman's movement began in England as an idealistic demand for equality with man. As women entered industry, this demand was reinforced upon practical grounds. Important property rights were granted in a number of countries, placing women more nearly on an economic equality with man, educational opportunities were greatly increased, and, following the World War, the ballot was granted to women in the United States and in England. (Norway, Denmark, and Finland had granted suffrage yet earlier.)

One other accompaniment of the machine, the most important of all—democracy—remains to be mentioned. It must be treated separately in connection with the labor pains of the great revolutions which brought it into being.

3. THE OLD ORDER

England

England in the eighteenth century was a most interesting and agreeable spot for the upper classes. The political wrangling had been settled in conservative fashion in 1689. The dull Hanoverian dynasty was imported in 1714, and over it was placed an aristocratic Parliament that represented the nobility and the well-to-do. So England remained governmentally until the Reform Laws of 1832. The stupidity of one sovereign helped lose her American colonies; and the French Revolution and Napoleon spoiled the sleep of her citizens at the turn of the century. But in the main it was a period of stability and content. Similarly the religious wrangling had been settled by the tolerance established in 1689, and freedom of the press became the law of the land. In this peaceful afterglow of the Renaissance there flowered an amazing array of personalities, highly individual, cultured, entertaining. The Augustan Age it has been called. Not much creative literature of the

first rank came out of this polished era until the Romantic movement brought new life toward the end of the century; but its letters and memoirs are the best of reading. It would be hard to equal the century, in any other time or place, in this item of individuality. The flavor of Swift, of Bishop Berkeley, of the Pitts, of Doctor Johnson, the last of the Tories, of Burke, of Fanny Burney, of Robert Walpole and Samuel Pepys and John Fox, is unique. The record is a sufficient warning against easy generalizations about classical decadence. Granted the right stock and the right atmosphere of individual freedom and any age, even a fading classicism, can match the best.

Yet it is not difficult to see the weakness of the age. Certain stalwart minds—Swift (1667–1745), one of the greatest of satirists, and those tellers of robust tales, Defoe (1660–1731) and Fielding (1707–1754)—show no signs of decline. No more does the philosophy of Bishop Berkeley (1685–1753), disciple of Descartes and Locke and brilliant advocate of the view that nothing exists apart from mind. By thus stressing the mystery of consciousness and the fact that all philosophy, all science, the universe itself, are inconceivable apart from mind, he set modern philosophers their gravest problem. The lyric genius of Burns (1759–1796) and of Blake (1757–1827) is equally beyond question though neither is wholly of his age. The former in his love of nature and reach of emotion looks forward to the romantics soon to arrive, the latter back to the religious mysticism of Donne.

In contrast with these unquestioned geniuses, spontaneity is fading from the essays of Addison and Steele, and from the verse of Collins and Pope, despite their polished style and brilliant wit. The spirit of neo-classicism, that insists upon form at the sacrifice of imagination, takes command. It was against this false classicism that Romanticism revolted.

The outstanding literary growth of the century in England was the development of the novel, a form that was peculiarly fitted to express the British mind of the nineteenth century. The great Swift, terrible in satire, told an absorbing tale in "Gulliver's Travels." Defoe's "Robinson Crusoe" lives as one of the greatest stories of adventure ever written. But it was Richardson, of lesser stature, who turned the novel to its modern task of depicting character and portraying emotions. Thereafter Fielding, a genius of the first rank, carried the form to maturity in "Tom Jones," one of the great English classics. Smollett and Sterne rounded out this vigorous achievement in prose that went far to offset the decline in poetry.

But, as befits the century, the most typical literary figure of the age was not a writer of great genius but a vigorous personality, the uncouth, outspoken, and unforgetable Doctor Johnson (1709–1784), who lives not in his own books but in his life written by the worshipping Boswell, himself the greatest of contemporary biographers.

Politically England had taken no radical step in the so-called revolution of 1689. With a spirit of practical conservatism that was typically English, her political leaders had continued an oligarchy in power. The British Parliament took command to develop slowly that system of responsible cabinet government through a prime minister appointed by the crown, but dependent upon maintaining a majority in the House of Commons, which was to be imitated throughout democratic Europe in the nineteenth century. In the eighteenth century leadership shifted between the two parties of Whigs and Tories, the former largely Dissenters and merchants, the latter largely Anglicans and landowners. Robert Walpole (1676–1745), Edmund Burke (1729–1797), and Charles James Fox (1749–1806) were the great Whig leaders; William Pitt, earl of Chatham (1708–1778), and his son, William Pitt the Younger

(1759–1806), the outstanding Tories. It was an era of brilliant political leadership based on vast and undisguised corruption. The rotten-borough system solidified the control of Parliament within the grasp of the few. Bribery was the normal means of securing votes in Parliament. Graft upon a colossal scale was the rule in public administration. Yet on the whole it was a period of governmental success for England. The Seven Years' War (1756–1763) conducted by the elder Pitt gained India and Canada from France. The loss of the American colonies was the only considerable setback the empire sustained.

It was an age of large landed estates, of honest yeomen, of stage-coaches, of country squires, of gambling, and heavy drinking. As a natural incident of this comfortable aristocracy, the great portrait-painters of the eighteenth century developed, with Reynolds, Gainsborough, Romney, at their head, the first rich flowering of British pictorial art.

In the Middle Ages, in the Renaissance, history is largely built about dynasties. Rulers like the Medici, Charles V, Henry VIII, Louis XIV, waged war, chose creeds, set the style, much as they willed. Underlying economic forces, religious faith and the power of great institutions like the Church controlled in the long run beyond the ability of potentates to obstruct or alter. From decade to decade, the leadership of a strong king was paramount.

In the eighteenth and nineteenth centuries the dynastic rulers of importance are exceptions in a plot that increasingly centres about plain citizens, either as laborers, voters, or members of a mob, and their heroes. Behind the scene of the whole modern drama stand the scientists and inventors, largely invisible and unnoticed, yet determining by their machines and discoveries the habits and lives of every one.

So there is little to note regarding these latter-day kings of England. After William and Mary, their sister,

Queen Anne, ruled amid general calm from 1702 to 1714. Under George I (reign: 1714–1727) and George II (reign: 1727–1760) Parliament increased its sway. The long reign of George III (1760–1820) saw an effort to restore the powers of the crown. It failed completely. England entered the nineteenth century to face the full tide of industrialism as she had entered the eighteenth, an efficient aristocracy. Important civil rights, of religious freedom, of free speech, of trial by jury, were assured to every man; and monarchy was safely hobbled for all time. Political freedom, which is to say democracy, was still afar. Yet, plainly, the lot of the English people was secure and contented enough to prevent all chance of violence. The example of the French Revolution stirred radical hopes. Thomas Paine (1737–1809) preached antimonarchism in "The Rights of Man." Development and compromise over many years prevented political revolution in the very country where the industrial revolution made the forces of change most active.

France

Superficially there were many resemblances between England of the eighteenth century and France of the Ancien Régime (which is to say the "former system") before the Revolution. The aristocracies of the two countries were, in fact, in close contact. If no English king was as profligate as Louis XV, the great-grandson of Louis XIV, who reigned from 1715 to 1774, the atmosphere of gaiety and frivolity in the life of the nobility of France was the Gallic equivalent for the more robust high living of the ruling classes of England. Events proved that the former were dancing over a volcano of popular discontent that was to burst forth in a bloody revolution. England not only escaped violence at this time but, a generation later, when the industrial revolution developed grave evils and discon-

tent in England, beyond anything on the Continent, a peaceful extension of the ballot again forestalled serious trouble.

Certain obvious causes of this divergence can be set down. It is impossible to rate their relative importance or to say that other and more fundamental facts of national character were not controlling.

The political and economic contrast has already been suggested. England had retained her monarchy, but had placed over it a Parliament representing an aristocracy of merchants and large landowners. If here was anything but democracy, there was at least a broader base for government which, coupled with the important safeguards of liberty won through the centuries from Magna Carta to the Bill of Rights, provided an efficient government and prevented excessive taxation and other abuses. France had retained the absolute monarchy which Louis XIV had crystallized into a divine and unchangeable despotism. The old French "parlements" were merely provincial law-courts which sometimes criticised and opposed the king's laws but could not veto or alter them. When discontent became intense in the reign of Louis XVI (reign: 1774–1793), the only available body representing the whole nation was the Estates General, which had not met for a century and a half. Had the kings of France been great administrators, they might at least have given their country the efficiency of a benevolent despotism. Louis XIV took his task seriously, but his egotism was his only first-rate gift. Louis XV was a wastrel, Louis XVI a solemn blunderer. The nation lost the bulk of its American colonies to England. High taxes kept the peasants from prosperity. It was a period of elegance and luxury for the nobility, of incomparable grace and measured beauty in art. For the lower classes it was an hour of discouragement and discontent.

In art the period was one of rare grace and charm, reaching the original genius of Watteau and falling back

into a rigid classicism that produced the so-called Empire style as the century was ending and Napoleon was arising. Yet the pencil of Ingres (1780–1867), trained therein, ranks with the greatest. The literature of the old order was largely, as in England, composed of letters and memoirs, and otherwise of small importance. The great school of Molière disappeared in mediocrity. The great writing of the century looked toward the future, not the past, and belongs properly in the next section. Even Voltaire, who has been called the last of the old era, stimulated profoundly the new. The intellectual leadership of Europe fell to France in the new movement, and it arose despite the old order, in no wise from it.

Russia, Prussia, Austria, and Poland

The eighteenth century has been called the age of enlightened despots. Russia had Peter the Great and Catherine II, and prospered greatly. Frederick II, called "The Great," brought Prussia to the rank of a great power. For Austria Maria Theresa and Joseph II did all that could be done for their backward and diverse peoples. By contrast, Poland, lacking a strong or unified government, was partitioned almost off the map.

The vast territory of Russia, largely Asiatic in blood, was still Asiatic in customs and dress when Ivan the Terrible ruled over it in the sixteenth century in the height of the Renaissance. By sheer, barbaric power Peter the Great (reign: 1672–1718) did much to rebuild Russia and Europeanize the externals of Russian life. He took the Baltic provinces from Sweden to get a "window on the sea," and built St. Petersburg in a Baltic marsh as a new European port to displace the ancient inland capital, Moscow. Russia continued her advance under the sway of the notorious Catherine II (reign: 1762–1796), one of the ablest and most despotic of rulers.

The rise of Prussia really began with the rise of Brandenburg, of which the small town of Berlin was the capital. The petty house of Hohenzollern bought this negligible electorate in the fifteenth century, added to it steadily, and under Frederick William (reign: 1640–1688), the Great Elector, extended its scattered territories from the Rhine to the Baltic. In the east had been added the separate duchy of East Prussia, a Slavic territory colonized by returning crusaders (Knights of the Teutonic Order) in the thirteenth century. The son of the Great Elector took the title of "King in Prussia." His grandson, Frederick II, the Great (reign: 1740–1786), greatly enlarged the kingdom at the expense of Austria and of Poland. Frederick was a military genius of the first rank and a cultivated and benevolent despot. From Poland he took West Prussia, thereby closing the gap which had separated East Prussia from Brandenburg. From this house of Hohenzollern came the first German emperor, William I, and William II, his grandson, who lost his throne in the Great War. The kingdom of Prussia had become by the end of Frederick the Great's reign a strong military power and the leading German state.

The medley of races and languages and peoples which composed Austria were brought together by the ancient house of Hapsburg. Its capital was Vienna, and the territory round about included the most southeasterly members of the Teutonic race. To this was added the large kingdoms of Bohemia to the northeast and Hungary to the east, the former largely inhabited by Czechs who were Slavs, and the latter by Magyars, themselves a mixed breed of Turko-Slavic ancestry. In addition there were Croats and Slovenes to the south, Italians in northern Italy, and, for a while, Flemish and Walloons in the Netherlands. The seventeenth century brought the climax of the Turkish threat to Europe and, as was noted before, Vienna was be-

sieged by the Ottoman troops in 1683. Thereafter Austrian and Venetian arms prevailed and the Turks were driven back beyond the Carpathians. They still held a great empire in Europe where now is modern Serbia, Bulgaria, Roumania, and Greece, to say nothing of territory surrounding the Black Sea. When Frederick the Great took Silesia from Austria in 1748, Maria Theresa (reign: 1740–1780) set out to recover her lost territory, and the Seven Years' War (1756–1763) that ensued was heard round the world. The first motive behind the war was the Austrian desire to curb Prussia; in the alliance against the new kingdom were assembled Austria, France, Russia, and Sweden. The war had scant results in Europe. In America it decided the issue between England and France. The French and Indian War that began in 1754 between the English and French colonists was won by the English largely because of France's involvement in the war against Prussia. Wolfe's victory at Quebec in 1759 won all Canada for the English. French interests in America were practically wiped out by the farther cession of the territory beyond the Mississippi to Spain. Similarly in India, England won the beginnings of a great colonial empire from the French. The dispute between Maria Theresa and Frederick the Great shifted the frontiers of empire in three continents. Joseph II (reign: 1780–1790) was another intelligent and benevolent despot, and he did his utmost to weld his diverse subjects into some sort of national unity. But the task was hopeless. Austria-Hungary, like the Balkan States to the southeast, remained a source of conflict down to the World War, which was set in motion by an Austro-Serbian dispute.

Meantime Poland had been three times partitioned. Her nobles had preserved a feudal anarchy, tying the hands of the king and preventing the development of a representative government. In the National Diet unanimity instead of a majority vote was required for action. The king was

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elected by the nobility and could do nothing without the consent of the Diet. As a result, her surrounding neighbors helped themselves to her territory at will. The first partition of 1772 gave West Prussia to Prussia, White Russia to Russia, and Galicia to Austria. Poland experienced a brief rebirth as a reaction to this assault; but in 1793 the powers carved again. Prussia, Russia, and Austria advanced their lines yet farther. A Polish patriot, Kosciusko, who had fought under Washington in the American Revolution, led a brave revolt; but Russian numbers prevailed on the field of battle, and the remnants of the great Polish kingdom were finally, in 1795, divided between the three surrounding powers, Russia taking the lion's share. It was a century of strong personalities and despotic leaders before whom Poland, weakly led and torn by countless rivalries, fell an easy victim.

4. REVOLUTION AND DEMOCRACY

The arrival of democracy, in a political sense, one of the major changes of the nineteenth century, was marked by a series of explosions. The first was the French Revolution, and it remained the loudest until the Russian Revolution surpassed it in bloodshed and terror. From this extreme, the disorderly and spasmodic advances of democracy ranged down to lesser revolutions in Germany and Italy and mere rioting in England and the United States.

The movement seems to be a clear case where an idea preceded and helped set in motion material causes. The conception was developed in France in the eighteenth century, long before the effects of the industrial revolution had entered that country. There was grave discontent in agricultural France. But there had been serious unrest in Paris before, notably in the Fronde, or civil war, of the seventeenth century. The poverty of the French peasant at this time has been much exaggerated. While it is im-

possible to analyze the causes of great popular movements with accuracy, it is clear that the intellectual ferment of the eighteenth century played a considerable part in bringing the situation in France to a head. It is perhaps safe to say that without brilliant and original minds to forecast a new order and a good level of native intelligence among the people to understand it, there would have been no overturn.

For the other side of the picture, the establishment of democracy in France upon a secure basis was postponed until the industrial revolution had arrived. Violent oscillations followed the Revolution, and the country was torn between dictatorship, or monarchy, and radical democracy. It was not until the arrival of the third republic in 1870 that the violent forces set loose in 1789 approached an equilibrium. In England, where representative government made slow but steady progress, democracy arrived in the wake of the industrial revolution gradually with a minimum of violence. It seems clear that the development of democracy was related to the spread of the new industry. Yet here, again, it is dangerous to be dogmatic, and safer only to point out certain obvious relationships. The factory system at once imposed a new demand on the state—that it regulate conditions of work. It thereby greatly increased the people's interest in government. With each new complexity of social organization added by a machine, by the railroad, by the steamship, by electricity, the obligations and functions of the state were enlarged. The modern mind often wonders why the peoples of Europe endured despotism so long. One answer is that in a primitive agricultural community there is little for a government to do except to fight wars and maintain order, and the peasant is largely indifferent to what happens in the high places of his country, so long as his land is not fought over too often. The factory system also created large cities, and cities have always been the breeding-spots of radicalism. Groups of

men having similar interests were thrown together for the first time, and the organization of popular movements was stimulated. For a third point, the swift increase in the means of communication made democracy physically practicable. Without railroads, without the telegraph, without newspapers, modern democracies could not have achieved even the beginnings of effective public opinion which have thus far been developed.

It can be seen that democracy is not a simple conception, and that the arrival of political democracy is but one step in a long process of change. The rise of the common man to political power has been closely interwoven with his changed industrial condition and both are parts of a wider social revolution which may be regarded as the most important fact in a true democracy. The order of development has roughly been, first civil rights (trial by jury, for example), next political rights (the ballot), then industrial power (whether through unionism and an increase in bargaining power or by sharing in profits or management). What may loosely be called social democracy centring around such facts as the abolition of nobility, based on inheritance and the fostering of opportunity for all, is more difficult to analyze and bears no necessary relationship to any of the other conditions of democracy.

The growth of the democratic spirit in England has been a gradual evolution. In America, likewise, there was no sudden reform. France rushed to the extreme of the democratic ideal in her revolution, declaring the complete rights of man, civil and political, for the first time; but reaction set back the hands of her clock for three-quarters of a century. It is difficult to make accurate comparison between the nations in respect to the quality of their democracy. England is sometimes referred to as, to-day, the most democratic nation; but this assertion applies only to her politics. Thanks to her responsible cabinet system, her government

is more immediately responsive to popular will than is the American. In France, the power of an entrenched bureaucracy of office-holders has reduced the effectiveness of the ballot. But both America and France have outstripped England in the important item of social democracy. Partly this is due to the fact that both countries have abolished an inherited aristocracy. More fundamentally, it is probably born of old habits and customs; "fraternity," one of the three words in the motto of the French Republic, dates from Revolutionary times; the pioneer spirit which formed American character has kept the country a land of friendliness and opportunity despite the rise of great fortunes. The shades of meaning in all these words vary so as to make comparisons difficult. All the ultimate facts of democracy, of the citizen before the courts, at the ballot-box, in the day's work, in community life, defy statistical presentation. This vagueness dismisses much history and much political theory to the realm of guess. The complexity of the democratic movement, the ambiguity of its terms and the haziness of its human facts, must be borne in mind throughout this section.

The intellectual ferment of the eighteenth century came from two different sources. One was the new science and reason, typified in Voltaire (1694–1778); the other was nature and emotion, dominating the new movement known as romanticism, of which Jean Jacques Rousseau (1712–1778) was the apostle. Of the two forces, the latter was by far the more potent. Romanticism gave the pervading tone to the mind of Europe for more than a hundred years; down through the nineteenth century, in fact. It produced a great literature in England, in France, in Germany, in which revolution played an inevitable rôle. The rationalism of Voltaire was destructive rather than constructive. It attacked the established order, the Church, the monarchic state, with irony and keen analysis. It taught disrespect

and undermined the foundation of the old order. Voltaire possessed a marvellously fertile and active mind. He wrote in every form of literature. His intellectual leadership for several generations was unquestioned in France, and his 10,000 published letters testify to his influence throughout Europe. He was in frequent difficulties in France, and was obliged to live in Switzerland; France was far behind England in establishing freedom of speech. His literary rank is below his importance as a contemporary influence.

Rousseau urged not more reason, but more instinct and emotion. He blamed the current evils upon civilization and called for a return to natural man. "The Social Contract" had a direct influence upon the revolutionary spirit, for it asserted the sovereignty of the people, and declared that their will alone legitimized a government. For all the absurd excesses of his praise of savage man he was a great and original genius. He is a good example of that swinging of the pendulum from one extreme to another which is one of the undoubted phenomena alike of individual action and social movements; his extravagant faith in primitive human nature was a profound and understandable reaction from the artificialities of French society. The whole romantic movement can be viewed as a reaction from the neoclassicism of the eighteenth century. It sought the free play of imagination at the expense of form. It was at the time far more realistic than the false classicism which it superseded.

It can be seen that the points of view of Voltaire and Rousseau had little in common save their individualism and their enemy—the established faith and order. They represent, in fact, two forces in modern minds that have often clashed and that are still unreconciled. Voltaire believed in God—he was far from an extremist in his own faith—but he was plainly the ancestor of all the modern rationalistic attacks upon religion, of that warfare between sci-

ence and religion of which the late nineteenth century heard much. He was no scientist, and the rationalistic point of view must be sharply distinguished from the scientific. It might fairly be described as an effort to apply the scientific method to religion and other matters with which science proper has not yet attempted to deal. Faith in emotion, in instinct, which was the heart of Rousseau's doctrine, inspired much of the great literature and the newly developed art of music of the late eighteenth and nineteenth centuries. The faith in revolution rested upon a similar philosophy. Rationalism and romanticism can be thought of as tendencies of the mind which have struggled for the mastery of modern man.

Two other French prerevolutionary writers remain to be mentioned, Diderot and Montesquieu. The former was the able leader of a group known as the encyclopædists, who edited a new encyclopædia which gave wide circulation to the discoveries of science and to the new ideas of progress. Montesquieu's "Esprit des Lois" was a study of governments, largely devoted to praising the British form which it somewhat misconceived; it had an important effect upon American and French constitutional thought.

A wide-spread intellectual ferment in other lands aided the development of democratic theory. The tempestuous Paine (1737–1809), an Englishman by birth, was a persuasive advocate of revolution while in America, and in "The Rights of Man" gave strong support to the French Revolution. The early and basic contribution of the philosopher Locke has already been mentioned. A century later in date came the political works of the German philosopher Kant (1724–1804), who lent the full support of his powerful pen to the cause of republicanism. This great thinker began his career in the study of physical science and applied to philosophy the searching rationalism of this early training. His "critical philosophy" closed a chapter

in the history of speculative thought and opened the modern period. It is an ironic commentary on the difficulties of applying logic to life that he wrote "Toward Perpetual Peace," picturing a world-federation of free republics, on the eve of the Napoleonic despotism.

The rise of romanticism in the eighteenth century initiated the outstanding artistic movement of modern times. In a century it dominated the literatures, the visual art, and the music of all Europe. While definitions are difficult, certain tendencies of the romantic writers were universal. They turned from classic example and the intellect to find inspiration in natural scenery and in the primitive emotions of man. They trusted imagination as against tradition, and before the mysteries of the universe preferred a mystical wonder to scepticism. They revived an interest in early national writings like the English ballads. Their favorite mediums of expression were lyrical poetry and the novel. The latter, indeed, was the creation of these centuries. The schools of landscape-painting showed the same broad tendency in the pioneer work of the Englishman, Constable, and of the Barbizon school in France.

In England the movement reached its first great climax in the lyrical outburst of the late eighteenth and early nineteenth centuries, in the work of Wordsworth (1770–1850), Coleridge, Byron, Shelley, Keats (1795–1821). These five diverse geniuses typify the breadth of the English gift for the art of writing. The best of Wordsworth ranks with the greatest in any tongue, making the common uncommon. Coleridge sought to make the uncommon credible, as in the magic stanzas of "The Ancient Mariner." Byron aimed lower and flew farther in popular admiration, expressing in his own life the passion and storms of romanticism. Shelley dwelt amid the stars, a dreamer and martyr, one of the greatest of lyric poets. Yet in sheer physical perfection of the written line, Keats, dying at twenty-six, was

master of them all. The novel, after passing through the historical romanticism of Scott (1771–1832), and the effortless realism of Jane Austen (1775–1817), culminated in the great Victorians, Dickens (1812–1870) and Thackeray (1811–1863), and was carried through the nineteenth and into the twentieth century by such contrasting figures as Meredith (1828–1909), Hardy (1840–1928), and Conrad (1857–1924). There have been few more varied flowerings of any form of art than that of the British novel. Dickens used the novel to reform the law courts, to stir the laughter and pluck the heart-strings of a wide public. Thackeray made a more intellectual and aristocratic appeal. The three Brontë sisters and George Eliot, Charles Reade, and Anthony Trollope, helped paint the most complete portrait of an age that has ever been attempted. The Victorian era was absurdly depreciated in the early twentieth century. It is coming into its own once more. Probably its novels will be its most enduring claim to immortality, since they achieved so complete an expression of the English mind. But the essayists, historians, and poets of the period rank high. Lamb and De Quincey, Macaulay and Carlyle, Ruskin, Morris, Arnold, Newman, Huxley, Pater—here was surely a century that could hold its own in prose. Where the great Victorian poets, Tennyson, Browning, Arnold, Meredith, Morris, Swinburne, the Rossettis, and their successors, Thompson, Henley, Stevenson, Kipling, and now our contemporaries, Housman, Meynell, Flecker, Masefield, and de la Mare, are to be ranked, time must decide. But the old genius of the English mind for the written word has surely not been lost in the new devotion to science and salvation through democracy.

In France the pioneer, Rousseau, was followed by a wide variety of writers, all overshadowed by the titanic figure of Victor Hugo (1802–1885), who, despite his colossal output of dramas and novels, seems most likely to survive in his lyrics. The rise of the novel culminated in the "Comédie

Humaine" of Balzac (1799–1850), a wide shelf of novels, representing a genius of the first rank, as faithful to the facts as the work of any modern realist. Between such romanticism and the most meticulous realism only a problem in technic can draw a boundary line. The novels of Dumas and George Sand followed older models. It was in the criticism of Sainte-Beuve and Taine that the French mind glowed its brightest. Yet if to the lyrics of Hugo are added those of Lamartine, Alfred de Musset, and Gautier there is rare achievement and vitality.

In Germany the master works of Goethe (1749–1832), and Schiller (1759–1805), took part of their inspiration from the romantic revolt, though both are commonly rated classicists. No writer in any country more fully expressed the modern spirit than did Goethe. The first great German writer, he addressed all men as have only the supreme figures of literature. The romantic movement surged about him and he felt not less the tides of science. His life labor, "Faust," summed up an individual philosophy, as did Dante's "Divine Comedy" or Milton's "Paradise Lost." With this great drama are to be ranked his many lyrics, passionate and wise. Schiller showed more clearly the extravagance of emotion which was the weakness of the romantic period. Of the men who expressed the extreme thrust of romanticism in Germany, the pessimist and philosopher, Schopenhauer (1788–1860), and the dreamer and singer, Heine (1799–1856), stand out. Nietzsche (1844–1900), the philosopher in revolt against his age, advocate of the "superman" and the "will to power," stands between the romantics and the moderns.

In Russia the outstanding figures were the great novelists Turgenieff (1818–1883), Dostoyevsky (1822–1881), and Tolstoy (1828–1910), surpassed by the novelists of no other country.

The mental growth of America has paralleled much in

Europe. Yet her greatest contributions to literature have been extraordinarily individual and original. Poe (1809–1849), the craftsman, Whitman (1819–1892), the uncouth, Mark Twain (1835–1910), the elemental, and James (1843–1916), the complex, are as unrelated to one another as they are to any schools of European thought. It would be interesting and useful if one could determine just how the wider stream of American literature, bearing such names as Irving, Cooper and Hawthorne, Emerson, Thoreau, Longfellow, Whittier, Lowell, Bryant and Parkman, should be rated in comparison with contemporary achievements in other countries. But such comparisons between nations are difficult and unsatisfactory. Americans perhaps overestimated their writers for a time and then probably underestimated them. A fairer balance seems now in course of being struck as the nation reaches maturity and self-consciousness fades. Considerations of national sympathy and pride play a constant part in the formation of literary as of historical judgments.

The romantic movement was definitely related to the revolutionary spirit of the times and to the intensification of nationalism. Wordsworth applauded the French Revolution, Shelley revolted against the established order, Byron hymned the Greek revolt, and the German romanticists did much to unite the German peoples around their national heroes.

Enriching and inspiring the whole romantic movement, and in a sense its most perfect expression, by reason of an incomparable ability to utter emotions, came the development of modern music. It was led by the majestic pioneer, Beethoven (1770–1827), and continued in the nineteenth century by three other great German musicians: Wagner (1813–1883), Liszt (1811–1886), and Brahms (1833–1897). The primacy of Germany in music was accentuated by the development of German lieder, an obvious

parallel to English lyricism, and not less noteworthy. Schubert (1797–1828), Schumann, and Franz are merely the first names in a long line of great German lyricists in the field of music.

Romanticism was a broad tendency, confined to no one school, and impossible of accurate definition. It was a reaction from a false classicism and, polemics forgotten, involved no rejection of the essentials of true classicism, of order, structure, style. The two bedevilled words, romanticism and classicism, are typical of the confusion which surrounds most historical conceptions that have been the subject of fierce controversy.

The movement brought its conscious reaction in the realists of the latter half of the nineteenth century, of whom the French novelist Beyle, who wrote under the name Stendhal (1783–1842), was the forerunner, and Flaubert (1821–1880) the pioneer. The revolt was largely centred about problems of technic, of inventing new methods of using words and lines and colors to convey ideas. The movement has extended to every nation and entered every art. Such names as de Maupassant, Zola, and Huysmans in France, Hauptmann and Sudermann in Germany, Chekov, Gorky, and Andreyev in Russia, and, ranking them all, Ibsen, the great Norwegian dramatist, suggest the breadth of modern realism in literature and the unsoundness of attempting to contrast it with anything but the excesses of romanticism. Modern poetry has been greatly influenced by French leadership. After the romanticists came as a reaction the classical Parnassians, who pursued the ideal expressed in the phrase "art for art's sake." Baudelaire and Verlaine, poets of despair like the Englishman Wilde, had their day. The modern experiment in *vers libre* originated with the French symbolists and their successors. In painting, the Impressionists of the last decades of the nineteenth century sought methods for reproducing sunlight on can-

vas. The Cubists of the present century and their successors endeavored to develop a new kind of picture in which the essentials of form might be conveyed direct to the eye without imitation of reality. Similarly, certain writers of the present era have tried to present thoughts, especially the vague stream of the individual's unspoken thought, by various types of speech. Modern music has likewise broken away from the old conventions of harmony and tonality. It is too soon to say whether this reaction from the great tide of romanticism holds any real achievement or is simply the eddying of weakening currents or whether, indeed, it is a reaction at all and not merely the new direction of an old current. Especially since the World War has confusion been the most conspicuous characteristic of all artistic endeavor.

The Americas

The American Revolution was fought and the new Constitution adopted (1788) before the French Revolution began. The ideas of Voltaire, Rousseau, Diderot, Montesquieu, and, even more, Thomas Paine played their part in the American scene; and the example of the revolt undoubtedly reacted upon France. The same double set of causes, spiritual and material, were present in America, and the same debate exists as to which were the more important. The colonies wanted more independence, and the government of George III was stupid and tactless. The ideals of liberty and equality expressed in the Declaration of Independence represented a genuine emotion on the part of many of the colonists. There were, on the other hand, solid, economic reasons for revolt against taxation and other restraints. An open mind would concede force to both causes and refuse to attempt, in view of the present ignorance of human motives and mental processes, to say which was the more important.

The American Revolution raises another perennial problem. The colonists were extraordinarily fortunate in having as a leader one of the noblest characters of history —George Washington (1732–1799)—and it is a fair speculation whether the revolt would have succeeded without his indomitable courage and purity of motive. No one will ever know, for it is impossible to run the events over again without him. One other American deserves to be mentioned from this period—Benjamin Franklin—whose scientific work has already been set down. Franklin represented the colonies in Paris with great success, and since French arms and a French fleet made the final success at Yorktown possible, the importance of his work abroad is obvious. Simple, practical, wise, Franklin was a large part of early America, and Paris did well to honor him. Both Franklin and Washington helped carry the spirit of the American Revolution abroad. Another bond was Lafayette, who fought with the American forces as a youthful idealist and formed a lifelong friendship with Washington. Personalities loomed large in the whole revolutionary effort in America, which hung in the balance time and again and might well have ended in failure.

The restricted scope of the American Revolution should be kept in mind. Despite the vague phrases about liberty and equality in the Declaration of Independence, there was little radicalism in the colonies, and no thought of a democracy based on manhood suffrage. Religious freedom had, indeed, been achieved in the colonies and the separation of church and state was one new landmark of liberty which the new nation set up. But the revolution was primarily a political one to throw off the British sovereignty, and the government set up was a republic carefully safeguarded against radical change by a written constitution and a system of checks and balances among the executive, legislative, and judicial branches. The whole was modelled after the Brit-

ish and colonial governments, with a President substituted for the king, but omitting the chief figure of the British government, the prime minister, because his functions were newly developed and not clearly understood. Thus, unlike the governments of Europe, the United States has not a responsible cabinet system. Its executive is elected for a fixed term, and he may or may not have a majority of Congress behind him. Here was a factor strongly making for conservatism. Only the propertied classes voted as in England. Not even Thomas Jefferson advocated manhood suffrage, and the noble phrases of the Declaration of Independence expressed a general aspiration rather than a plan of reform. The chief contribution of the American Constitution to the science of government was its ingenious use of the federal principle. Here were also its strength and its weakness—its strength in that the federal system made practicable the union of scattered and diverse colonies; its weakness in that the division of sovereignty made possible the Civil War. An incidental and, to some extent, accidental item of originality was the supremacy of the Supreme Court over the legislature, not clearly written in the Constitution but established at an early date largely through the brilliant governmental genius of Chief Justice Marshall.

The force of the democratic movement reached the question of the ballot in the '20s and manhood suffrage became practically universal by 1850. In the broader aspects of democracy, the figure of Abraham Lincoln (1809–1865) achieved a lasting and far-reaching influence. He was a frontiersman, born and reared in poverty, and typified all that the pioneer life held of simplicity and friendliness. By his fineness of spirit and firmness of leadership—which held the nation together despite the deep cleavage from the problem of slavery—Lincoln became a national hero ranking with Washington in the country's regard. He became not less, a world symbol of democracy, of the potential worth of the common man.

Thus while the United States started life with certain governmental features unlike anything in Europe, it was an integral part of the Western World and derived its institutions and traditions primarily from England. That it has gradually diverged from Europe, developed an American type, American policies, and American institutions, which set it apart from Europe, is due to various causes. The basic reason is the Atlantic Ocean, which, despite the utmost that science has done, still holds the two continents days apart. Just as England, an island nation, has always remained somewhat aloof from the European scene, so America, behind an ocean, has grown to manhood amid a high degree of independence. Another geographic reason has largely determined the direction of this independent path, the fact that the nation has been obliged to develop a virgin continent and, generation after generation, has gone west. The pioneer experience has moulded the national character and is still to be felt in the land, though the last frontiers are failing. Democracy in the widest application, in the human relationships of society and business, is one of the fruits of the pioneer spirit. So, in all probability, are such traits as adaptability, friendliness, simplicity of manners, and a taste for quick shooting. The origins of the two conspicuous trends of American character, an intense materialism and an intense idealism, are perhaps to be sought in the same national experience, though how two such contrary aims can proceed from the same source forms one more mysterious problem of heredity and environment. One other physical fact must also be borne in mind, the new mingling of European types which has kept the American stock predominantly English, yet in every period crossed with other breeds, with French, German, Irish, Scandinavian, Italian, Slav, and Jew. The result is a mingling of racial strains unique in the western world upon any such scale. In that the three main racial types of European recognized by many anthropologists, Nordic, Alpine, and Med-

iterranean, are present, the racial origins of France are suggested; yet since the northern overwhelmingly predominates, no close parallel exists and, environment aside, a new national type might be expected to develop. But the racial strains of Europe are so little understood and the whole science of anthropology is so immature that these superficial facts of the American fusion must be read with every reserve.

What is unmistakable is that continental United States contains in addition to its European and white elements two wholly alien stocks, the American Indian and the African Negro. The former was a serious obstacle to early colonization but has since been overwhelmed by the white man and the only problem he raises to-day is how to protect a small and weakened minority, along with its interesting primitive institutions, from political ignorance and greed. The Negro, on the other hand, has not been overwhelmed and constitutes to-day roughly one-tenth of the nation. No European nation has had to face so serious a racial problem within its national borders. The issue of Negro slavery caused the Civil War (1861–1865), which placed the whole national structure in peril; and the abolition of slavery, which resulted, solved none of the fundamentals of the problem, either socially, industrially, or politically. The Negro problem has seriously obstructed the normal growth of political parties. Racial antagonism still withholds political equality from the Negro in the Southern States where he is numerically powerful; in the North, his industrial and social handicaps remain heavy. The presence of this large, unassimilable element probably constitutes the most serious problem that the nation has to confront. No possibility of fusion, such as has taken place in certain Central American countries, appears to exist. Having this one grave racial problem on its hands, America has quite sensibly halted Oriental immigration to avoid another.

Barring the one calamitous break of the Civil War the nineteenth century constituted a period of swift continental extension and development. The earlier decades were largely devoted to pushing the frontier westward and to building canals and railroads. With the annexation of California in 1848, the nation ran from ocean to ocean and the industrial revolution, as the result of a system of protective tariff, began to make swift headway. The result is the extraordinary era of mass production in which Americans now live. From being a nation almost wholly agricultural, the United States approaches the day when its entire food supply will be consumed at home, thanks to its vast and properous industrial population.

In its relations with the rest of the world, the nation early developed that independence of view-point which has controlled its policies to this day. Washington uttered a memorable warning against foreign alliances. The unsuccessful War of 1812 was a gesture of resentment at foreign interference with American shipping. In the Monroe Doctrine (1823), one of the major national policies of the world, the new nation declared its purpose, on the one hand, not to interfere in European affairs which did not concern the safety or interests of America, and, on the other hand, not to permit either new colonization in the Americas or the extension of the monarchical system to the newly established republics or any other interference with their independence. As a result Russian designs to extend Alaska southward and proposals by the Holy Alliance to aid Spain in recovering her American colonies were blocked. The Monroe Doctrine was a large gesture for a small and newly formed power. But it has been upheld, applied, and extended by subsequent administrations, soundly against Napoleon III and Maximilian (1863–1867), blunderingly against England in the Venezuelan dispute (1895), and with widened scope against England and Germany when

those nations sought to collect their debts from Venezuela by blockade and occupation (1902). This last episode broadened the original doctrine so as to prevent even an intervention for financial purposes by a European power; as a logical consequence the United States has been forced to act as a collecting agent in a number of cases. The effects of the World War upon the Monroe Doctrine have been much debated. Had the United States entered the League of Nations there would have been a clear modification of the policy even though it was expressly referred to in the League Covenant. The refusal of the nation to sign the covenant may fairly be taken as a decision to adhere to the historic American policy.

With the turn of the century, the United States rounded out its period of internal development and embarked upon its second great period of overseas expansion. The war with Spain (1898) resulted in carrying the American flag across the Pacific to the Philippine Islands and converting the nation into a great colonial power. The realization that the nation faced west as well as east led to the construction (1904–1914) of the Panama Canal through the vigorous if high-handed initiative of President Roosevelt.

The United States did not enter the World War until forced thereto by the unrestricted submarine campaign of Germany against American ships and nationals and the discovery that Germany was seeking to form an alliance with Mexico by promising that nation the restoration of her former territory in New Mexico, Texas, and Arizona. The declared purposes of the nation, however, recognized the war as a struggle between democracy and autocracy and the prevailing sentiment of the nation had been strongly with the Allies from the start. Arriving at the climax of the struggle, American forces proved a decisive factor in preventing a stalemate and winning a military decision against the Central Powers. The leadership of President Wilson

during the war and at the peace conference, which he personally attended at Versailles, has been the subject of bitter disagreement and it would be impossible to present any agreed or impartial estimate of his policies. In forming a personal judgment as a basis for present action, one must be careful to recognize its tentative character and stand ready to revise it as facts replace surmises and perspective succeeds prejudice.

In the western hemisphere, Canada alone has developed, within the British Empire, a civilization homogeneous with that of the United States. Talk of annexation of Canada by the United States, once frequently heard, has been forgotten in an era of mutual respect and cordial friendship. The rest of the nations to the south, from the Rio Grande to Cape Horn, have followed the American example governmentally, but for racial, linguistic, and commercial reasons have retained closer intellectual bonds with Europe. The American Revolution gave the inspiration for South American hopes of liberty, but it was not until Napoleon invaded Spain in 1810 that a favorable opportunity arrived to strike. Then the struggle began in Venezuela under the leadership of Bolivar (1783–1830), the greatest of South American patriots. He helped free Venezuela (1821) and Peru (1825) and to set up the new nation of Bolivia (1826). Brazil declared her independence of Portugal in 1825 but remained an empire until 1890, when a republican government was established. The struggle for independence in Argentina began in 1810 and was substantially won by 1824, but owing to wars and rebellion stable government was not assured until after the revolution of 1890. The Chilean struggle lasted from 1810 to 1818, and after a dictatorship, a constitutional republic was set up in 1823. In Mexico independence was achieved in 1824, but it was not until the long dictatorship of Diaz (1874–1911) that stability and material prosperity were achieved. In general

and with significant exceptions based on racial distinctions, it may be said that the nations lying in the tropical regions of Central and South America have been slow to end revolutions and establish lasting governments save under dictators, whereas the nations to the south lying wholly or partly in the temperate zone have shown more capacity for self rule. Argentina, Brazil, and Chile, for example, commonly known as the A B C powers, have become powerful and stable states.

France

The French Revolution began in 1789 and lasted ten years, till Napoleon seized the reins and ended the rule of the people in a dictatorship. It began in orderly fashion, with no thought of overturning the monarchy. The Estates General, composed of the clergy, nobility, and the third estate, were called by the king to meet at Versailles in May to consider the desperate problems of taxation which confronted the nation. The first dispute ended in a complete victory for the third estate, which by sheer boldness organized itself into the first National Assembly of France. The weak, hesitating Louis XVI first opposed and then surrendered to the third estate's insistence that it sit until a constitution be prepared.

In July the first disorder broke out at Paris, where the Bastille was captured and razed on the 14th. The spirit of revolt spread to the provinces, and a number of châteaux were burned by the peasants to destroy the records of feudal dues. As a result the Assembly at Versailles speeded up the labors, and the remaking of France was accomplished in the month of August. Here was no mere shift of political sovereignty, as in the American Revolution. Serfdom was abolished, taxation was reformed so as to bear upon all alike, the Church tithes were abolished, and the old provinces were replaced by departments, ending the old feudal

diversity for all time. The Declaration of the Rights of Man wrote into the law of the land the ideals of equality and liberty which Rousseau had preached. The sovereignty of the people was asserted, and freedom of speech and religious liberty were established.

Once again Louis XVI hesitated. As a result, a Paris mob, composed chiefly of women, marched to Versailles to ask for bread, and brought him and his family back to Paris with them. Thereafter he was virtually a prisoner in the Tuileries. But still there was no thought of throwing him out. The National Assembly also moved to Paris, and in the more radical atmosphere of the city blundered into its first excesses. It passed laws altering the organization of the Church and seizing its property. At the end of the first year the nobility were abolished. Thereafter the émigrés over the border conspired to start a counter-revolution which would restore the old order. Even so, the second year ended with the populace still loyal to the king. The turning-point came in June, 1791, when the king and queen committed the unpardonable blunder of attempting to escape from France. By chance they were halted near the border and brought back ingloriously to Paris. This final act of the dull Louis XVI sealed his doom. Republican sentiment now began for the first time to develop after two years of revolution. During this early period the moderates had been in control of the Assembly under the leadership of Mirabeau, an aristocrat, a moderate, and one of the ablest Parliamentary leaders of France.

The third year saw a swift turn toward the extremists. Most potent in stirring radical sentiment was the war commenced by the monarchical powers of Europe to rescue Louis XVI and his queen, Marie Antoinette, sister of the emperor of Austria. As a consequence all Paris was stirred by fear and wrath. The Jacobin clubs gained control of the Assembly, mobs invaded the Tuileries, and in

September, 1792, the Paris Commune, the radical city government, which had usurped the powers of the Assembly, committed one of the most dastardly crimes in history. It massacred in prisons several thousands of alleged sympathizers of the Austrians and the émigrés. In the same month the monarchy was abolished by a Constitutional Convention and a republic proclaimed. In the spirit of fantastic radicalism which now seized upon Paris, a new republican calendar was created. The king was convicted of treason—he had unquestionably treated with other rulers who wished to invade France—and executed in January, 1793. There succeeded the terrible year of the Terror, from April, 1793, to July, 1794, the fifth year of the Revolution. If the early years of the Revolution were based on the doctrines of the Nationalists, of Voltaire, of Diderot, and Montesquieu, it was the emotionalism preached by Rousseau which now engulfed Paris. A Committee of Public Safety was formed whose primary duty was to save France from the invading armies. It accomplished this end in an extraordinarily successful military campaign, thanks largely to Carnot. Meantime the Terror was turned against alleged enemies at home. Revolt against the radical rule at Paris flared in the provinces, and as a result the Committee of Public Safety was forced to fight a civil war at home while defending the frontiers against foreigners. Thousands were executed by the guillotine in Paris and many more in the provinces. Marie Antoinette was put to death in October, 1793. The climax of the reign of Terror came in June and July, 1794. In the reaction, the fanatical Robespierre, leader of the Terror, was himself guillotined, and the slaughter was over.

The Revolution passed through five more years of relative quiet, disturbed by occasional uprisings and violence. The lesson of representative rule was slow to learn. Finally in November, 1799, Napoleon Bonaparte (1769–1821), a

young general of Italian ancestry, a Corsican by birth and a Frenchman by the chance of Corsica's annexation a year before his birth, returned from campaigns in Egypt and Syria, executed a military coup d'état, threw out the legislators at the point of the bayonet, and established himself as the virtual sovereign of France under the form of a consulate. There can be no question that the arrival of Bonaparte was generally welcomed as a deliverance from the blunders of the new democratic rule.

From 1799, for fifteen years, Napoleon was the despot of France, a threat to all Europe, and the remoulder of much of it. No other military or political leader, not even Alexander the Great, ever bestrode his time so completely. He is the complete expression of the great man theory of history. As such he has been belittled and derided by the believers in economic causes and hymned to the skies by the hero-worshippers. It is difficult to hold the scales even before such a superman. One point of discrimination seems clear, and that is the turn in his career that became unmistakable midway in his despotism, around the year 1807. From the start his colossal egotism spurred him from one conquest to another. But his dreams of power became more grandiose with the passage of the years, less realizable, more obviously doomed to end in disaster. His military genius, once swift, flexible, and sure, began to overreach itself, to attempt the impossible and apply old formulas to changed conditions. Even his physical appearance changed; from a lean officer, born to command, he became a pompous potentate, seeking to impress. It is easy to admire the vast energy, the complete originality, and the real services of the young Napoleon, become at thirty the master of his country. It is impossible not to be disgusted by the overweening ambitions of the emperor in his last years of arrogance and tyranny. In the beginning he reorganized France, in the rôle of a ruthless but benevolent

dictator, and it may fairly be said that this one-man rule put into effect many of the ideals of the Revolution which an inexperienced and incompetent democracy had fumbled. The sequel can be regarded as a peril which besets any despot, destroying his sense of proportion, threatening even his reason.

The chief achievements of Napoleon at home included the restoration of peace with Rome by the Concordat of 1801, the rehabilitation of public finance, the drafting of the Code Napoléon, ending the confusion of the old provincial laws and setting a model widely followed in the Latin nations, the building of great highways, and the establishment of a national system of education.

Abroad, each successful campaign recast the map of Europe. Already in 1797, in Napoleon's first and perhaps most brilliant campaign, the young general, acting for the Committee of Public Safety, had defeated Austria in northern Italy, and gained for France, by the treaty of peace, Austria, Netherlands, and the central part of northern Italy, which Napoleon organized into the Cisalpine Republic. By another campaign against Austria in 1800, which was decided by the famous battle of Marengo, French boundaries were pushed to the Rhine. At this time the region of the modern German republic was still divided into hundreds of petty states, all under the nominal sovereignty of the Holy Roman Empire. For generations the head of Austria had been elected emperor of the decaying Holy Roman Empire, and it was by this authority that the Austrian emperor turned over the left bank of the Rhine to Napoleon. The effect upon Germany was far-reaching; to compensate the nobles ousted from their territory the patchwork quilt of German organization was completely remade, and a few large kingdoms secured the bulk of the territory. Prussia at last had serious rivals among the German states, and the union of modern Germany in 1870

became possible. Various coalitions had been formed against France during the Revolution, and they were renewed against Napoleon. Brief intervals of peace occurred, but England met the Napoleonic threat with increasing resolve. She declared war against France in 1803, and the fight continued to its inevitable end at Waterloo in 1814. Napoleon assembled an army on the Channel coast, and England stood guard against invasion, though whether Napoleon really intended to risk a crossing while English fleets controlled the sea is not known. In 1805 Napoleon defeated the Austrians and Russians at Austerlitz. He had already assumed the title of king of Italy, and he now annexed the remaining Austrian territories in northern Italy. He ousted the king of Naples, and made his brother Joseph king of Naples and Sicily. His brother Louis he created king of Holland. In Germany he organized a number of dependent states. With Prussia, that had heretofore been neutral, he picked a quarrel and fought a swift and successful war. As a result, western Prussia was made the kingdom of Westphalia for the benefit of another brother, Jerome Bonaparte. Thus Napoleon marched about Europe, shifting boundaries, creating new states at will. The peace of Tilsit in 1807 marked the climax of this period of success. Yet one important exception is to be noted. England still ruled the seas. In 1805 Admiral Nelson won the famous sea-battle of Trafalgar off the coast of Spain, and thereby not only confined Napoleon's ambitions to Europe but maintained English arms as a potential threat to Napoleon's career. The vital importance of sea-power was once more strikingly exhibited.

The tide of success began to turn in the so-called Peninsula campaign of 1808 in Spain. By his personal skill he succeeded in seating his brother Joseph on the throne of Spain after several serious defeats; but the English army

under the duke of Wellington held on, and when Napoleon left, the French forces were slowly driven northward over the Pyrenees. The venture proved a costly failure. The next two years saw more victories for the emperor, notably that of Wagram in 1809 against Austria, which brought more territory to heel. At this moment the empire and dependencies of France included all Europe, save only Portugal, Sardinia, and Sicily in the south, Great Britain, Norway, Denmark, and Sweden to the north, and Russia, Austria, and Turkey to the east. In this hour of widest triumph he divorced his childless wife, Josephine, and married Maria Louisa, the daughter of the Austrian emperor. A son was born to his new wife, but his heir, named the young king of Rome, did not live to reign or to marry. He was regarded as Napoleon II by the loyal Bonapartists after his father's deposition, but when the Napoleonic dynasty returned, fifty years later, it was a collateral line, the son of Louis, who became emperor as Napoleon III. Imperialistic ambitions ruled Napoleon through these years of his greatest power. He created a new nobility, imprisoned several thousands of opponents, and rigidly censored the press. He exhibited perfectly the degeneration of the benevolent despot into the arrogant and vulgar tyrant.

The end was swift and inevitable. At Tilsit, Napoleon had agreed with the young Czar of Russia to divide Europe between them. Now his inflated dream could accept no rivalry, and in 1812 he set out upon his tragic effort to conquer Russia. His army of 400,000 dwindled to 20,000 in the battles and hardships of the campaign; the fearful retreat from Moscow gravely compromised his prestige at home. When he risked battle again in 1813 he met decisive defeat at the hands of the Russians, Prussians, and Austrians at the Battle of the Nations near Leipzig. The great empire collapsed like a house of cards, the allies entered Paris, and Napoleon was forced to abdicate. The rest was

epilogue. The famous Hundred Days were rich in drama, of small importance to history. The great emperor escaped from the island of Elba, landed in France in 1815, was greeted with enthusiasm by his old comrades in arms, and led a hastily reunited army against the allies at Waterloo. The British troops under the duke of Wellington stood him off, and when the Prussian forces under Blücher arrived, the French armies were utterly routed. Napoleon was banished to the island of St. Helena off the coast of southeast Africa, never to return.

The political story of France since has comprised violent swings of little permanent significance. The allies restored the Bourbon line to the throne in the mild and moderate person of Louis XVIII, the brother of Louis XVI (reign: 1814–1824). (The son of Louis XVI died mysteriously while a prisoner of the Revolution. Though never crowned, he was regarded by the royalists as Louis XVII.) His brother, Charles X (reign: 1824–1830), attempted a fanatical return to the Ancien Régime and was ousted by a brief revolution—once more barricades of paving-stones blocked the streets of Paris. Louis Philippe, duke of Orleans (reign: 1830–1848), descended from a younger branch of the Bourbons, attempted the rôle of a citizen-king under a constitution that favored the powerful bourgeoisie, or middle class, of France. But radicalism grew apace among the workers as the industrial revolution began to make itself felt in France, and the king turned in a panic to measures of suppression. There resulted the Revolution of 1848—a year of unrest throughout Europe—with the usual barricades and abdication. The brief-lived Second Republic began under radical control, and the newly organized socialists were soon fighting the conservative republicans. This time the military forces, representing the bourgeoisie, took a terrible revenge, slaughtering 10,000 working men fighting under the red banner of socialism. These "June

days" of 1848 killed far more than the Terror of 1794. Out of the mêlée appeared the strange and absurd figure of Napoleon III (reign: 1852–1870), nephew of the great emperor, mediocre, cunning, spurred by ambition to grandiose undertakings beyond his ability to execute, and great only in his devotion to the Napoleonic legend. He had twice before tried to seize the throne, and each attempt had ended in ignominious failure. Now the people turned to him to rescue the nation from civil war and elected him president of the republic; in 1852 he became emperor under the name of Napoleon III. Thus the Napoleonic myth returned to rule France. These years of tranquillity, of great industrial advance, ended in the disastrous Franco-Prussian War of 1870. The great Prussian chancellor Bismarck tricked the incompetent Napoleon III into a war for which the nation was utterly unprepared. French armies were overwhelmed, and out of a terrible civil war in the streets of Paris, more bloody than the Terror or the "June days," issued the Third French Republic, with a somewhat vague constitution, providing for a responsible cabinet system, modelled after the British pattern.

Its first years were threatened by monarchist and Bonapartist sentiment, but it gained strength and stability and passed through the ordeal of the World War unshaken. The separation of church and state was accomplished in 1905 after considerable disturbance. France remains a Catholic country, but schools and the government are alike free from clerical control. Radicalism in the industrial centres has been active, as the rise of socialism and of syndicalism, the more extreme doctrine of direct action, has recorded. But it has been counterbalanced by the conservatism of the peasants and the moderation of the bourgeoisie. The British cabinet system has not worked with complete success in France, and the life of governments has been short owing to the absence of a two-party system and the

prevalence of a large number of small blocs. A vast bureaucracy has gained influence at the expense of Parliament. Thus, after many tribulations, democracy, based on manhood suffrage and enacting the principles of civil and religious liberty which were born of the French Revolution, prevailed in France.

England

The growth of democracy in England was in complete contrast with the record in France. England had been a pioneer in protecting certain elemental rights of the citizen (safeguarding his person from arbitrary arrest and guaranteeing him a fair trial before an impartial court), and also in developing an effective Parliament, supreme in the state and not even subject to the king's veto. The monarch reigned, but did not rule, in England at a time when benevolent despots were still supreme on the Continent.

But democracy was still afar. Parliament was controlled by the nobility and large landowners clear down to the Reform Bill of 1832. One of the methods by which this control was perpetuated was by the system of rotten boroughs; that is to say, towns which had decayed and lost all or most of their population sent the same number of representatives as centuries ago. The great new industrial cities of Manchester and Birmingham had no representation. Bribery was rampant. The popular dissatisfaction with this situation forced reform by the threat of revolution but without violence. The Whigs brought in the bill, the Tories opposed it. The House of Lords rejected it after the House of Commons passed it, and the crisis came when the Whigs insisted that the king create enough new peers to pass the bill in the House of Lords. When the threat of revolution was clear, the king finally consented to act. The Lords then yielded, making the appointment of new peers unnecessary, but establishing for the future the

ultimate supremacy of the Commons. This principle was more important than the bill which merely abolished certain rotten boroughs, created some new ones, and extended the suffrage to shopkeepers and the well-to-do. Laborers, both in factory and on the farm, still lacked the ballot.

The campaign for reform was pressed by the Chartists, so called from their charter of reform, the chief items of which were universal suffrage and the secret ballot. The movement grew in intensity, revolutionary acts were advocated, and rioting began on a large scale. Great petitions were presented to Parliament. But the effort for the time being failed. It was in the long and peaceful years of Queen Victoria (reign: 1837–1901), and with the rise of two new parties—the Conservatives, who succeeded the Tories, and the Liberals, who succeeded the Whigs—that the Reform Bills of 1867 and 1884 were passed. Only one man in five had the vote under the Reform Bill of 1832. This was doubled in 1867, and in 1884, under the Liberal leadership of Gladstone, another extension was granted. Manhood suffrage came as a result of the World War.

Thus the conservative forces of England, by yielding gradually, when revolution threatened, saved England from disastrous overturns. It developed to a high degree of efficiency the so-called responsible cabinet system of government wherein the executive head of the state, the prime minister, though appointed by the king, was really the majority leader of the House of Commons, and held office only so long as he commanded a majority therein. With the rise of the Labor Party in recent years, the system has not functioned as well. When more than two parties are strong, democracy tends toward confusion and minority rule.

Commercially for England the important episode of the century was the repeal of the Corn Laws (1846). These laws imposed protective duties on foodstuffs—"corn" means "grain" in England—and as long as the landed aris-

tocracy controlled the government through the Tory party, repeal was impossible. But Adam Smith's "The Wealth of Nations" made a powerful argument for free trade, Cobden and Bright organized the Anti-Corn Law League, and Sir Robert Peel, a Conservative of the new school, finally carried through Parliament the repeal of the Corn Laws. Free Trade remained the general policy of Great Britain until the World War forced a partial return to protection.

For the last half of the nineteenth century English political history centred around the names of Gladstone (1809–1898) and Disraeli (1804–1881). The latter (who ended his life as the Earl of Beaconsfield), born in London of Jewish parents, was the unquestioned master of the Conservative forces for a third of a century. Protection and imperialism were his cardinal doctrines. He was a master of brilliant debate, an accomplished novelist, and his term as Prime Minister (1874–1880) was notably successful in foreign affairs. Gladstone's first ministry ran from 1868 to 1874, his second from 1880 to 1885, his third was in 1886 (lasting only a few months), and his fourth lasted from 1892 to 1894. His extraordinary popularity rested on a marvellous gift of oratory—his was "the best barytone voice in Europe,"—backed by a moral earnestness that assumed God to be on his side. He was naturally conservative, yet he became increasingly liberal in his political outlook and his career typified the gradual evolution of British opinion in the direction of social reform which culminated in the Old-Age pensions and similar legislation enacted under the Liberal leadership of Lloyd-George.

The most puzzling problem which disturbed English politics and defied solution throughout the nineteenth century was the Irish question. It was complicated by the religious split between the Protestant Ulsterites of the north of Ireland and the Roman Catholics of the south. Gladstone fought in vain to give Home Rule to Ireland. In the wake

of the World War the semi-independent Irish Free State was set up as a compromise. Whether it will satisfy the extremists remains to be seen.

The evolution of the British Empire has, Ireland aside, progressed with astonishingly little friction. It is of vast size, comprising more than one-quarter of the world's population and one-fifth of its area. The relationship of its component parts to Great Britain and to one another has been largely permitted to develop along the lines of natural growth. As a result the system is to-day full of anomalies, inconsistencies, and contradictions between the nominal, legal status and the reality. But, by reason of its flexibility it has withstood even the extraordinary strains of the World War and shows no signs of weakening. Efforts have been made to federalize the system but without success. The British Parliament at London is still theoretically supreme. But the five self-governing dominions, Canada, Australia, Newfoundland, New Zealand, and South Africa approach the status of free and independent nations, adhering to the British crown by free desire rather than compulsion. At the other extreme stands India, still ruled as a colony though slowly gaining rights of self-government. British rule in India, on the whole efficient, was marred by the terrible Mutiny of 1857, and since the World War a nationalist sentiment has developed which has stirred considerable unrest.

Germany

In every case the rise of democracy in Europe was preceded by the development of a strong nation. Only in a thoroughly unified state could popular rule be installed. The Germanic peoples were the last group to develop nationalism, and they were necessarily the last to achieve democracy. These small, independent states had resisted unification until the strong hand of Napoleon forced consoli-

dation in 1803. Feudalism, the Reformation, a variety of causes, had conspired to retard nationalism in Germany. Now rivalry between two great states, Prussia and Austria, developed a new obstacle to union. The former was overwhelmingly Teutonic—its only alien element was Polish. The latter, as has been seen, was a hopeless congeries of races and languages, Teutonic, Italic, Slavic. The ultimate victory of Prussia might easily have been predicted. Yet the historic prestige of Austria as the head of the Holy Roman Empire delayed the issue for generations. Napoleon destroyed the empire in 1806. The Allies by the Treaty of Vienna in 1815 substituted for the Holy Roman Empire a new German confederation which was a union not of countries but of rulers; it even included two foreign sovereigns, the kings of Denmark and Netherlands. Over this loose association Austria presided, and the idea represented a victory for Austrian over Prussian ideas. Prince Metternich (1775–1859), the astute prime minister of Austria, helped maintain this status during the critical year of 1848, and in modified form it endured down to 1870, when Prussia finally organized the German Empire without Austria, and left even the Teutonic elements of Austria definitely out of the German picture.

Liberalism fared ill in the German states after 1815 in the general reaction from the horrors of the French Revolution. Yet, as industrialism advanced, the spirit of democracy increased. A number of states, including Bavaria, made certain concessions, and Prussia formed a customs union which built the economic foundations for Bismarck's later labor of consolidation. The Revolution of 1848 failed in the German states largely because the timid king of Prussia refused to accept the offer of the democrats to head a German empire. His successor, William I (reign: 1861–1888), was a strong and clear-minded ruler, and he called to his aid as minister the ablest Euro-

pean statesman of the century, Otto von Bismarck (1815–1898), a Prussian of the Prussians, a believer in the mailed fist, in the policy of "blood and iron," a hater of democracy, and a junker, which is to say a landed aristocrat, probably the most conservative class the world has produced. He set out to build up a powerful army based on universal military service and to oust Austria from the German union. A quarrel with Denmark over Schleswig-Holstein gave him his opportunity. Prussia and Austria had jointly defeated Denmark and annexed these provinces, but Bismarck insisted that they be made in effect a part of Prussia. When Austria refused, Prussia declared the German Confederation dissolved, marched against Austria, and defeated her forces at Sadowa (1866). The North Confederation was thereupon organized by Bismarck as a half-way step to the empire. A popular Parliament was provided for, perpetuated in the Reichstag of the empire, but the chief power was reserved to a federal council, the Bundesrat, representing not the people but rulers, and this body was also preserved in the empire. The sequel was not long delayed. Bismarck picked his quarrel with the incompetent Napoleon III, united the South German states behind Prussia in a brilliantly successful war, and at Versailles in 1871 William I of Prussia was proclaimed German emperor. The powers of the emperor and of the Bundesrat remained paramount as in the North German Confederacy, and the empire was launched upon its able, ruthless policy of militarism, industrialism, and expansion overseas, which ended only with the Empire's defeat in the World War. When Bismarck was faced by the rising tide of socialism under the leadership of Marxian ideas, he stole its thunder by instituting a series of socialistic reforms, including accident and sickness insurance and old-age pensions. But this was done paternalistically, not democratically, by the representatives of the people. The German state also stole the thunder of the

socialists in industry by operating railroads and mines, and generally exerting a powerful paternalistic control over capital as well as labor. The manufacturers of Germany were supported by protective tariffs, and the transition to a highly advanced industrial state was swift. Having picked his three wars and accomplished his international aims Bismarck played a conservative and pacificatory hand, making peace with Austria, and forming the Triple Alliance with Austria and Italy in 1882. William II, who came to the throne in 1888, was a far different type. He pursued a policy of colonial and trade expansion, of German imperialistic supremacy, arrogantly and blindly. As a result of his egotism Bismarck resigned in 1890, and the German Empire plunged ahead under its wild rider.

Austria

The Revolution of 1848 struck Austria from several quarters. The Italians rose in the south, the Hungarians and Bohemians to the east; even in Vienna the populace drove Metternich from office. Chiefly, these were racial revolts; in this respect differing radically from the revolutions in France and Germany. At first fortune favored the revolutionaries, and it seemed as if Hungary, which had deposed the Austrian king, might succeed in becoming an independent republic under the leadership of the patriot Kossuth. But Russia came to Austria's aid, the rebellion was ruthlessly put down, and Austria resumed her supremacy over her alien and subject races in the east until her next international crisis. This came when Prussia defeated her armies at Sadowa, and in 1867 Hungary forced the formation of the dual monarchy known as Austria-Hungary. The emperor of Austria was to be king of Hungary, but there were to be two Parliaments, and the Hungarians could boast a virtual independence. Unfortunately, the Slavs within Austria gained nothing by this re-

form, and, supported by Russia and their fellow Slavs of the Balkans, they remained an explosive force within the ancient empire of the Hapsburgs. Thus, alone among the great nations of Europe, Austria entered the twentieth century without achieving that peculiar fusion of race, custom, economic interests, and sentiment which distinguished modern nationhood in the Western world. Able leadership was not wanting, for Emperor Francis Joseph, who reigned from 1848 to 1916, and saw both the Revolution of 1848 and the opening of the Great War in 1914, was a beloved and intelligent ruler. The Hapsburgs lost their battle for unity, and Austria was reduced to a minor state by the Great War because of the inescapable racial facts of the region which this house had for five centuries held together as the nucleus of an empire, at times setting its boundaries as far distant as the Straits of Gibraltar and the British Channel. If the Great War was caused fundamentally by the exaggerated nationalism of Germany, it was immediately occasioned by a minor episode, the murder of the Archduke Ferdinand, in the unending quarrel between the Hapsburg dynasty and its Slavic subjects. The German people had rushed belatedly into a nationalism artificially stimulated and ruthlessly advanced in an effort to overtake more fortunate rivals. Austria had never achieved modern nationalism. Both were laggards in the Western world in this important item of unity and effective organization. Democracy reached Austria only after its hour of greatness had passed, probably never to return.

Italy

The battle of Italy for liberty and unity forms one of the most dramatic and moving pages of modern history. Unfortunately, its subsequent achievement of democracy has been one of the least successful in Europe. In the first half of the nineteenth century Italy, like Germany, was sim-

ply a geographical expression. The northern part was held by Austria; from Rome the Pope ruled the Papal States cutting clear across the peninsula; to the south a Spanish Bourbon reigned over the kingdom of the Two Sicilies. As a result of centuries of division, Italy, from being the intellectual and artistic leader of Europe, had fallen far to the rear. Napoleon seized the peninsula and gave it an artificial unity, which was never forgotten. The reaction carried Italy to new depths of ignorance and poverty, but the revolutionary spirit of '48 found bold and inspired leaders ready for action. Two uprisings in the '20s, led by a secret society known as the Carbonari, had failed. Now a new movement known as the Risorgimento, or Resurrection, gained force among the youth of the land. Mazzini was the intellectual leader of the revolt, Cavour its man of practical wisdom, and Garibaldi its daredevil guerilla general. The rising of 1848 ended in disaster, ruthlessly put down by Austrian arms. But in 1860 the whole of the peninsula, save Venetia and Rome, was freed and united under King Victor Emmanuel, who had ruled over the kingdom of Sardinia, which comprised the island of Sardinia and also Piedmont, the northwestern part of the mainland of Italy. Venetia was wrested from Austria in 1866 as a result of Prussia's great victory. Napoleon III had played a shifty part in the warfare, finally siding with the Pope to preserve a remnant of his temporal power. But in 1870 he needed his armies at home, and Italian forces entered Rome, which was proclaimed the capital of the new kingdom. A constitutional monarchy was established modelled on the British system, and the ballot was extended gradually until manhood suffrage was achieved in 1911. But illiteracy and ignorance of Parliamentary rule have greatly handicapped the government, which remained one of the most corrupt and least efficient of Europe down through the Great War and until Mussolini seized the reins

of power as a virtual dictator. He put the nation to work and gave it the blessings of a benevolent despotism. Its future is obviously unpredictable.

5. WORLD POLITICS

It is true of international politics, as of industry, that the nineteenth century merely applied and worked out to their logical conclusions the forces created in the eighteenth century or existing before. Yet by reason of the swiftness of scientific progress, reducing the size of the globe so as to bring the whole world into rivalry and industrializing warfare, international politics reached a new intensity that found its climax in the World War. The Far East found itself confronted by Europe, the United States entered the Pacific and embarked upon world policies, and the Pacific succeeded the Atlantic as the centre of international rivalry. World politics came into being in a new sense, and may be regarded as the chief international development of recent times.

The central force of international politics in the nineteenth century was the old one of nationalism. Largely founded in the Middle Ages, brought into the field of consciousness in the Renaissance, this peculiarly European product gained in vigor in the last century as a result of the advent of democracy. Certain causes of war were eliminated; for example, the old quarrels between dynasties, essentially private disputes that concerned the people not at all but which often devastated regions and killed thousands. But democracy introduced new sources of dispute which offset these gains. To begin with, the efforts of minorities to set up independent nations and of rival races to alter boundaries created new and frequent causes of wars, especially in the Balkans, where racial elements were diverse and unreconciled and nationalism inchoate. The wars of democracy, including the great revolutions, may be

dismissed for the future by the optimistic on the convenient theory that, once firmly established, democracy cannot be successfully attacked. Yet the case of Italy under Mussolini shows how easy it is to overestimate the solidity of democratic institutions in Europe. It is by no means certain that democracy is anything more than one more stage in man's experiments in governing himself, and, conceivably, other stages and fresh violence may accompany such changes. Finally, it is to be remarked that democracy introduced a new pride of patriotism that brought nationalism to its highest pitch of separatism. The first French republic was as imperial in its will to conquer as was Napoleon a few years later. The democratic empire of Great Britain fought the Boer War, and the democratic republic of America fought the Mexican War. Democracy may yet prove to be the pacificatory force that democrats assume it to be, but its record thus far is one of vigorous nationalism and, by one name or another, conquest.

The wars of these two centuries originated around four causes, sometimes acting singly, sometimes in combination. They may be roughly classified as the spirit of revolution (either to attain independence, as in the American Revolution, the revolt of the Spanish colonies in America, the Italian wars of liberation and the Boer War, or to overthrow a despotism, as in the French and Russian Revolutions), colonial expansion (as in the Anglo-French wars for the American colonies and India of the eighteenth century, British wars completing the conquest of India in the nineteenth century, the Spanish-American War, resulting in the annexation of Porto Rico and the Philippines by the United States, and the race of the European powers, including Germany, arrived late upon the field, to secure colonies in Africa and "spheres of influence" in the Far East), the struggle toward nationhood (by Germany and Italy, the last two great powers of Europe to achieve unity, and

by the Balkan States, which, owing to racial divisions, remain unstable), and the rivalry of established powers, seeking to remake the map of Europe and to gain the leadership of Europe or the world (as did France under Napoleon, and the German Empire under Kaiser Wilhelm II).

The principal revolutionary wars and the march of colonial expansion have been described. The struggle toward nationhood of Germany and Italy has been related. Perhaps the American Civil War is most accurately classified with these efforts to perfect a nation. The Balkan wars remain, and, since they are inextricably intertwined with the ambitions of the major powers and led up to the World War, these great rivalries of Europe must first be outlined.

The year 1815 is often taken as a dividing mark between the old order and modern Europe. At the Congress of Vienna the Allies who had defeated Napoleon drew a map that was to last for half a century. They also adopted the new ideal of a concert of Europe which should organize the great sovereigns in a federation for the preservation of peace and the existing order. The Czar Alexander I sincerely proposed the plan under the title of a "Holy Alliance." It was accepted by most of the rulers of Europe as a pious gesture, Great Britain alone rejecting it as "a piece of sublime mysticism and nonsense." A number of congresses were held and several matters affecting the minor powers successfully handled.

But the breakdown of the Alliance was gradually forced by the rise of the Eastern, or Turkish, question, which touched not the minor powers but Russia, Austria, England, and France. The Holy Alliance provided for no rule of the majority by which such vital questions could be settled, and, confronted by such an issue, the nations reverted to the old serviceable principle of the Balance of Power. This was an elementary rule of international common sense, dating from the days of Greece, and simply held that na-

tions generally must seek to prevent any one nation from gaining such a preponderance of power as to threaten the security of the rest. It was a logical rule, but as applied it often produced sudden and amusing shifts. England followed it in the sixteenth century, siding first with Emperor Charles V when Francis I was winning, and abandoning Charles when Francis was defeated. It was the basis of the coalitions against Louis XIV and against Napoleon. Confronted by the Eastern question, in the nineteenth century, England sided with Turkey in order to prevent Russia from becoming too powerful in the Balkans. The first trouble arose out of the Greek revolt against Turkish rule in 1821. All Europe watched with interest this war of independence, which was conducted with terrible ferocity on both sides. When it was on the brink of failing in 1827, Russia intervened to rescue the Christians of Greece from Mohammedan rule. England and France sympathized with the revolution but would not permit Russia to proceed alone. A joint intervention was arranged, which resulted ultimately, in 1832, in the complete independence of the Greeks. On the other hand, in 1853, when Russia sought to assert a protectorate over the Christians in the Balkans, Britain and France sided with Turkey and helped defeat Russia after a severe struggle in the Crimean War.

Throughout the century the Ottoman Empire, long called "the sick man of Europe," showed an amazing vitality. Driven slowly out of Europe, this vigorous race clung tenaciously to each line of defense. As a result of the Crimean War, her government, the "Sublime Porte," was accepted as a member of the European family and strengthened in its foothold north of the Bosporus. It was not that England and France loved the Turks more, but that they loved Russia less. England especially feared the effects of a victorious Russia upon her colonial interests in India.

There have been three major Balkan wars since Crimea.

The first, in 1875, was a great uprising of the Slavic peoples, beginning in Herzegovina and spreading into Bosnia, Macedonia, and Bulgaria. Serbia, that had achieved a degree of independence in 1817, joined the revolution. The Turks were near victory when Russia again intervened and changed the tide of battle. The Sultan Abdul Hamid II was driven back upon Constantinople, and forced to sign a treaty that nearly wiped out Turkey in Europe, though England and France and Austria came to her rescue. Roumania, Serbia, Montenegro, and Bulgaria achieved full independence, Bosnia and Herzegovina became an Austrian protectorate.

There was constant protest in the Balkans against the limited boundaries of the new states, Greece fought a brief and futile war to gain the island of Crete (1897), and in 1912 the Balkan League commenced a united offensive against Turkey (usually referred to as the First Balkan War). The Allies were swiftly victorious, but as swiftly began to quarrel over the spoils. Bulgaria sought to take the lion's share, and as a result the Second Balkan War began (1913), in which Bulgaria fought her former allies and Turkey as well. Bulgaria was defeated and the Turks regained a little ground. The settlement satisfied no one, and the outbreak of the World War found the whole peninsula in a ferment. The immediate occasion of hostilities in 1914 was the bitter feeling between Serbia and Austria over Bosnia and Herzegovina, which the Serbs regarded as racially akin. Thus the Balkans, by reason of their hopeless mixture of races, entered the twentieth century without achieving national stability.

It must not be thought from the fact that England repeatedly united with France against Russia that any Anglo-French entente existed at this time. To the contrary, the memory of Napoleon lived on in English minds to awaken constant suspicions of French motives. When Napoleon

III resurrected the French Empire, his ambitions justified alarm. The grandiose ideas of that monarch included the conquest of Mexico (1863–1867), and the tragic adventure of Maximilian of Austria was ended only by the blunt opposition of the United States, acting under the Monroe Doctrine, to keep European ambitions out of the Americas.

In the Far East the only people to maintain their independence and develop into a nation comparable to the European nations was Japan. The change came with amazing swiftness following the opening of Japan to the world in 1853 by the visit of an American fleet under Commodore Perry. At that time Japan was living under a feudal system bearing many resemblances to the feudal system of Europe in the Middle Ages. Within a generation a revolution was effected without a parallel in history. Feudalism was abolished, serfdom was ended, a national army was established, the machine age was installed. Japan was Europeanized in government, in industry, in learning. Having absorbed so much from the West, this alert, ambitious people set out to copy the colonial policies of Western nations. Seeing China in process of dismemberment by European powers, she fought China (1894) and easily defeated that huge nation but was deprived of her conquests by the Western powers. Russia proceeded to build the Trans-Siberian Railway and seize Manchuria, the northeastern province of China. Japan saw her chance of western expansion disappearing and brought on the Russo-Japanese War (1904–1905). She was victorious on land and sea, and by the terms of peace gained her first foothold in China. In 1910 Japan followed up this policy, by annexing Korea. The victory over Russia brought Japan the rank of a great power, gave her people a feeling of confidence, and aroused fears in the Western world of the "Yellow Peril," fears that had been forgotten for a thousand years.

By contrast, China has resisted Europeanization, has not

developed a national unity of the Western type, and in consequence has been largely overrun by the European nations. Japan, with a population of little more than fifty millions, by accepting European civilization, has been able to do what China, with three hundred millions is still struggling to accomplish. Yet considering the many factors that enter into the success of a people, it would be folly to conclude that the Japanese, by reason of their swift adaptation, had outstripped China. The extraordinary abilities of the Chinese people have been indicated before and their dignity, honesty, industry, and capacity for local self-rule are still impressive. Chinese isolation was forcibly ended by the European powers beginning in the middle of the nineteenth century. Upon various pretexts, ports were seized and provinces annexed. Russia took the coast to the north, France, Anam, Tonkin and Cambodia to the south, England seized Burmah adjoining India. Even Germany got a harbor, Kiao-Chau, in 1898. In addition, commercial "spheres of influence" were allotted to the powers. These invasions had, in the meantime, stirred a revolt against the "foreign devils." A secret society, popularly known as the "Boxers," led an uprising (1899–1900) which killed many missionaries and traders and brought an international army to Peking to take a bloody revenge. Thereafter the tide turned rapidly in favor of Western civilization in China, Western learning was welcomed, and in 1912 a revolution overturned the Manchu dynasty and set up a republic with Sun Yat-sen as its first president. But the Chinese were not ready for so radical a change and the republic disappeared in a welter of warring generals and armies from which no stable government has yet appeared. Industrialization has slowly entered China but conservatism and a preference for Chinese institutions has prevented any swift and wholesale Europeanization such as took place in Japan. The latter country has extended her influence and power in

China as rapidly as the other powers would permit. The policy of the Open Door, urged by the United States, has been a considerable factor in saving China from complete dismemberment.

Last to feel the thrust of European colonization and the effects of world politics was Africa. Not till the last decade of the nineteenth century did the real scramble for African colonies begin. The interior of the "dark continent" had been explored by Europeans only a few decades before. Barring its northern shore on the Mediterranean, which was one of the earliest habitations of civilized man, the continent was cut off from the rest of the world by its lack of harbors, its outer rim of mountain ranges, its unnavigable rivers and its great deserts. Geography can explain the slowness of exploration and development. One may guess that it was also the cause of the backwardness of the various black and brown races which inhabited it. But the puzzling problem of race is too little understood to permit any confident explanation.

Africa is a continent without a history and the archæologists and anthropologists have as yet reconstructed little of this vast chapter of the human story. Only two ancient skulls have been discovered, one, the Rhodesian skull, suggesting a distinct species of man more simian than Neanderthal. Aside from the dark-white peoples of northern Africa, the Hamites, the Semites, the Libyans, the two great stocks of central and southern Africa are the Negro of varying height and the short, yellowish-brown Bushman. (The Hottentot is generally regarded as a mixture of the two with other stock.) But the minglings have been many and no sharp lines of racial division exist. Roughly speaking, north and northeast as far south as Abyssinia and Somaliland the dark-white stock predominates; the Negro's territory comprises the equatorial forests and river regions of the Niger and Congo; the Bushman prevails in the south.

Such were the primitive peoples whose territory the European nations proceeded to divide, from 1890 to 1900. Great Britain secured about a third of the continent, in protectorates and colonies of varying size, north, east, south, and west. Germany's colonies, on the east and west coasts, were relatively small and poor. Even the Portuguese colonies, also east and west, were better. France secured the largest share, but since it included the Sahara desert its area meant little. What counted was the inclusion of Tunis, Algeria, and Morocco. For the control of the latter Germany made a bold bid; but the two diplomatic episodes of Algeciras and Agadir settled the contest in favor of France. This was thanks in large measure to the support of England, which ignored the petty "Fashoda incident" of 1898, a rivalry between far-flung lines, and built in its wake the entente cordiale. France has since developed her north African colonies into a rich empire. The island of Madagascar is also a valuable French possession. Like Germany, Italy entered the scramble for colonies at a late hour and Tripoli was all that she could capture. Altogether the partition of Africa into the patchwork which it now appears on the map, was accomplished with little warfare. The one great dispute was the Boer War, fought between one breed of colonizer and another. South Africa was settled by Dutch colonists in the seventeenth century. It became part of England by the Congress of Vienna. The disagreement between the Dutch and British colonists resulted in the Boer War (1899–1902), opposed by a vigorous minority in England as a brutal act of conquest, yet, in the end, producing a British success wherefrom the Dutch of South Africa entered the British Empire.

As often before, the European nations were so intent upon past dangers that they failed for a long while to perceive the new threat to the Balance of Power—the German Empire riding swiftly to domestic power and stirred by

overseas ambitions. There were ample warnings—at Algeciras in 1905 and at Agadir in 1911. But for a large part of England the conflagration of 1914 came as a cruel surprise. The nations of the world were forced to unite against Germany to preserve the Balance of Power much as they had united against Napoleon a century earlier. The United States was forced to cross the Atlantic to help defeat the German drive toward world mastery.

This brief analysis of the immediate cause of the World War is based on the prevailing view of historians of the Allied nations and America. It does not include the point of view of German historians or of the minority of Allied and American historians who agree with them. Concealment, passion, national and racial prejudice, make the truth of any conflict difficult to ascertain. Generations may elapse before the basis of an impartial view emerges.

Certain remote, underlying sources of antagonism which made war an accepted probability in the European mind have already been suggested, for example, the racial confusion of the Balkans and the intense nationalism of the rest of the Western world, which democracy strengthened rather than weakened. The economic rivalry of the modern world has played its part; for one detail therein, the late arrival of Germany upon the world stage blocked her adequate colonial expansion. On the other hand, despite handicaps, German trade, by industrial energy, scientific knowledge, and commercial skill, was fast outstripping British trade, when the World War arrived. The factors which control the human mind are too little understood to permit any thorough analysis of national motives. The most that can fairly be attempted is an arrangement of the more objective and ascertainable facts directly initiating the war.

These show, in the prevailing opinion of Allied and American historians, that Austria-Hungary started the war in the Balkans with the approval and support of the

German rulers and that the German decision to strike was born of fears and ambitions long held by her leaders and by them fostered in the mind of her people. To what extent those fears and ambitions were justified must be left to future generations to decide—with a justifiable doubt that they will ever understand enough of the human scene to reach a final judgment. The tentative character of every historical conclusion could not be better illustrated than in the problems raised by the origin of the World War.

The facts of the war itself are clearer and they deserve recording even in this brief sketch of the past by reason of the colossal human tragedy involved. Whatever interpretation future historians may place upon the facts, the drama of the great struggle will remain one of the most poignant and critical chapters of the human story. Germany and her associates, Austria-Hungary, Turkey, and Bulgaria, were most of the time outnumbered more than two to one—after Russia abandoned the Allies, the United States joined them. A score of nations declared war against the Teutonic powers. Yet by reason of Germany's superior preparation, her leaders had justification for expecting a short and successful war. Her plans called for a swift invasion and conquest of France before England could train her troops or equip them, and before the vast but ineffective Russian army could strike. Therefore, proceeding with true Prussian efficiency, Germany ignored her treaty obligations to protect Belgian neutrality and attacked France by the easiest route, via Belgium (August 4, 1914). Great Britain was unprepared for land warfare and her utmost support, hurried across the Channel to the aid of France, played a heroic but secondary part in this first act of the war. The German war machine drove across Belgium and into northeastern France with superb efficiency. The early French counter-attacks were premature and ill-advised. It was not until the German forces were almost at the gates of Paris that

their line, stretching eastward to Verdun, was halted. In the Battle of the Marne (September 5-9, 1914), the French took the offensive, disorganized the German drive and forced a retreat of twenty to forty miles. The victory was based both on German over-confidence and blundering and French élan and generalship. The battle was of incalculable value to the morale of the Allies and may well be ranked by future historians among the most significant battles of the world. For, while it was wholly indecisive of the ultimate issue, it ended finally the German plan of crushing France before Russia and England could make their numbers felt. Thereby the contest became one of trench warfare and slow attrition of man-power and time was afforded not only for Russia and Great Britain to play their parts but for the United States to arrive at the eleventh hour and turn the scales decisively against Germany.

Even before the Battle of the Marne the Russian forces invading East Prussia were trapped and overwhelmed in the thickets of Tannenberg (August 27-30, 1914) by Hindenburg. Thereafter the Russian armies re-formed, fought bravely and successfully against the Austrians, overrunning a large part of Galicia, and, once trench warfare was established on the eastern front, held their ground against the Germans. Yet by the end of 1914 it was plain that Russia had shot her bolt. She lacked both officers and ammunition and the need became urgent to link the east and west fronts of the Allies so that equipment could be furnished to the Russian forces and Russian man-power be used to the best advantage. Germany operating on interior lines could from the start strike east or west as she willed.

Hence came the Dardanelles-Gallipoli campaign of 1915, lasting from February to December, and ending in bitter failure for the Allies. The major strategy of the movement was admirable; the execution was hesitant and blundering. Had it succeeded, Turkey, which had entered the

war on the German side in October, 1914, would have been isolated, all the Balkans would have been driven to the Allied side, and the European front and the Russian front of the Allies would have been united. Twice victory was close at hand. But incompetent generalship brought the operation to a close after heavy losses.

Meantime, during the summer of 1915, the German forces renewed the offensive in the East and the Russian armies, fighting with a diminishing supply of guns and ammunition, were driven steadily backward. Russia fought on through 1916, sometimes with much success, but the crushing losses of 1915 were the beginning of the end, which came with the revolution of March, 1917.

The year 1915 was as disastrous for the Allies diplomatically as it was militarily. Italy, to be sure, came in on their side in May; but considering the Italian Irredenta which Austria held in the northeast, she could hardly do otherwise. (The Triple Alliance of Italy, Austria-Hungary, and Germany was forced upon Italy in 1882 by the grim threats of Bismarck and had long outlived reality.) By Allied delay and bungling, the wily King Ferdinand of Bulgaria was allowed to slip into the Teutonic Alliance. Thereafter German military ability supported German diplomacy in the Balkans with swift and brilliant success. Serbia, Montenegro, and Albania were overwhelmed and united with Bulgaria and Turkey in that Mittel-Europa which German statesmanship had long envisaged.

On the western front in 1915 the stalemate of rigid positional warfare was definitely established after a series of costly Allied offensives called "nibblings." Joffre aimed to break through precisely as the German forces under Falkenhayn were breaking through in the East. But artillery, whih had forced trench warfare, alone could end it, and the Allies, so far from having the needed superiority in artillery, were actually inferior. Soissons, Champagne, and

Artois were the principal French attacks of 1915, Neuve Chapelle the chief British offensive. All gained ground, but at a terrific cost in man-power, and no break-through was successfully followed up. The one offensive by the Germans on the western front deserves mention for the first use of poison gas in warfare. This was the Second Battle of Ypres in April, 1915. It is an interesting speculation that this surprise attack with a new weapon might have won the war for Germany if it had been used upon a large scale. It won a considerable local success, but the gas-mask was developed as a defense against it and trench warfare was again stabilized.

While Germany was winning these military successes of 1915, she was already embarking on the undersea campaign that was to prove her undoing, and the sinking of the *Lusitania* (May 7, 1915) had foreshadowed the policy of frightfulness which ultimately forced the United States into the war. Thus this critical year brought into play all the factors of the great struggle. By making ammunition and equipment, including such new weapons as airplanes and submarines, the essentials of victory, the war became a true war of peoples and the vast industrial forces behind the lines assumed an equal importance with the troops at the front. The test became one of nation against nation, not armies against armies.

The year 1916 was a period of continued stalemate, but, on the whole, better for the Allies than for Germany. Verdun, the Somme, and Jutland were the great names of the year. Falkenhayn devised the disastrous attack upon Verdun, the most intense test of human courage the world had witnessed. It lasted from February to December, cost 250,000 to 300,000 German lives, and failed utterly, thanks in no small part to the genius of General Pétain. The Somme was chiefly a British effort under the command of Sir Douglas Haig, timed to aid both the French at Verdun

and the Russians in the East. It was a vast attack, desperately fought and more costly even than Verdun. It failed in a strategical sense since no break-through was accomplished. Yet by a lavish use of artillery and the trial of the tank, it pointed the way toward the ending of trench warfare and the return of a warfare of movement. The naval Battle of Jutland was another draw, disappointing to British hopes, claimed in Germany as a victory, yet clearly establishing British control of the seas—barring only the peril of the submarine—for the rest of the war.

The year 1917 was a dark one for the Allies, relieved only by the entrance of the United States into the war. Russia collapsed. Italy suffered a terrible disaster at Caporetto. The only complete Allied success was the capture of Jerusalem from the Turks by British troops under General Allenby. West front operations were bloody and discouraging, so much so that insubordination appeared in the French army and defeatist propaganda nearly wrecked the French government. The most important battle of the year was Cambrai, where the British won a great success with the aid of tanks and then suffered a severe reverse. By breaking the Hindenburg line it showed that warfare of movement could be restored. But this costly land fighting, depressing as it was, sank into insignificance, by comparison with the German submarine offensive, which reached its climax in 1917. Ludendorff decided to risk all on this effort to destroy the Allies' means of communication and starve England. As a principal result, the United States declared war against Germany on April 6, and thereafter the only question was whether this country, unprepared for war, could become effective on the battle-field in time to be of aid. The submarine threat was met and halted by the summer of 1917, and the greatest German blunder of the war had not only failed of its objective but, by bringing the United States into the war, had made defeat almost inevitable.

Since time ran against him, Ludendorff gambled all in 1918 on two series of great offensives. The first attack was directed toward Amiens with a view to separating the British and French forces. It began with a sensational success but was finally halted. The second of the northern offensives was less successful. Thereupon Ludendorff turned to his final effort, the three great offensives toward Paris, which carried the German armies once more to the Marne and brought American troops for the first time into the line on a considerable scale at Château-Thierry and Belleau Wood. But the tide had now definitely turned. Under the unified command of General Foch, with fresh American troops rapidly coming into the line, the fate of Germany was sealed. Four great Allied offensives were begun in the month of September which drove the German forces before them from Flanders to the Argonne. By November, Germany was on the edge of disaster in the field and in the throes of revolution at home. An armistice came swiftly and inevitably on November 11.

The losses of the war were terrific, in scale with the millions of soldiers engaged, the length of the struggle, and the deadliness of the engines of war invented by modern science. The dead alone totalled 8,000,000 in round numbers, of whom the Allies lost 5,000,000. France lost 1,600,000, Germany 2,000,000. The Russian dead have been estimated at 1,700,000. Great Britain lost 900,000 dead. The wounded were more than twice the killed. The economic wastage was colossal.

The peace of Versailles was nominally based on certain general principles stated by President Wilson, commonly known as the Fourteen Points, and included in part in the terms of the Armistice. The general aim of these points was to assure a peace of justice rather than conquest, but the result inevitably fell short of this idealistic standard. France regained Alsace-Lorraine and the Italian boundary

was pushed far to the northeast so as to secure her frontier against Austria. Poland was restored to the dimensions of a major power with a new and strange appendage, a corridor running to Dantzig on the Baltic Sea. Pursuant to the principle of self-determination a long list of new nations was created, including Czecho-Slovakia and Jugo-Slavia (which is to say, South-Slavia). Austria was reduced to a minor power. Germany lost home territory and her colonies as well. In addition, a reparations bill was assessed against her. The League of Nations was created by the terms of the peace treaty to provide territorial guarantees and machinery for the prevention of future wars.

It can be argued that a peace of conquest could hardly have produced more dissatisfaction and unrest than has resulted from the Peace of Versailles. The increase in the number of petty nations has added to the sources of European quarrelling. The collection of the reparations bill raises a tedious and irritating problem. In the League of Nations is offered the one promise of better feeling and security. Yet the nations of Europe have reverted generally to the old system of alliances. France has built up a Little Entente, hemming in Germany. Germany has sought a rapprochement with Russia. England as usual remains somewhat aloof from the European scene, while seeking close economic relations with Germany.

Warfare has been frequent in the decade since 1918. The economic reconstruction of the European nations has been a slow and painful process. Yet, on the whole, recuperation from the wounds of the World War has made extraordinary progress. Once more man has survived a colossal disaster and returned to his task undismayed.

CHAPTER XXI

THE TWENTIETH CENTURY

If history were an exact science it might be possible to weigh the elements of the present and plot the future of the world. But knowledge of the past is fragmentary, the interpretation of known facts shifts with the changing wisdom of man. The springs of human action are so various that the unexpected is the normal. An accurate forecast of such issues is out of the question.

The most that can be done is to set down some of the forces operating in the world, thereby suggesting some of the directions in which changes may march. In thus speculating the danger is of overcertainty and of confusing hopes with probabilities. The effort in this volume has

been to present the past as the rich and changing background of man's actions, potent to stir his imagination and emotions, and useful in adding to the basis of his judgments —part instinct, part logic, part guess—by which the major decisions of individuals and of nations must inevitably be reached. Man needs all the past he can discover to aid in these rule-of-thumb choices. He must steadily realize, however, the imperfection of his premises and the large factor of doubt in every conclusion.

It is extremely difficult to analyze a period from a point of view within it. Yet one general aspect of the early twentieth century is fairly clear, and it intensifies the difficulty of accurate forecast. That is the confusion of currents into which the century has been carried. If no period is as simple as it seems to later generations—the Napoleonic reaction from democracy seemed to many at the time the end of all democracy—there have been many eras when certain forces were sufficiently powerful to sweep other motives aside and give a considerable degree of unity to its events. No such singleness of theme has yet appeared in the twentieth century.

Science and democracy are still the two conspicuous forces as in the two preceding centuries. The present may therefore fairly be classed with the years that went before. But the working out of these two themes, in so far as they touch human life, has lost its earlier clarity. Through the machine the influence of science has been multiplied many fold, and the rate of scientific and mechanical progress is still constantly increasing. But the triumph of science has been darkened by doubt, partly born of the terrible destructiveness of the World War, partly of the evils of machine labor, partly of the realization that science has not solved man's religious problems. Similarly, while the general trend toward democracy has not ceased and the extension of the ballot, as of humanitarian legislation, continues, several

abrupt and striking breaks in the tradition of popular self-government have occurred, notably in Russia and in Italy. The general faith in democracy has been somewhat weakened and the progress of self-government is seen to be far from the simple advance that revolutionary thinkers in the eighteenth century and democratic thinkers in the nineteenth century considered it. Reaction is scarcely too strong a word to describe present attitudes toward science and democracy. The reaction after the French Revolution offers a partial precedent, though the parallel between Napoleon and Mussolini is too incomplete to be convincing. At the least, strong cross-currents have entered the main stream of Western thought.

I. MAN AND THE MACHINE

Progress in the older sciences was never as swift and dramatic as to-day. Entrance into the atom has revealed a new universe and no one can predict the sequel. Similarly, invention has leaped all bounds and the machine age is already surpassing the wildest dreams of its prophets. It is no failure of the scientific spirit in its own field which has stirred present doubts. The weakness, if it may be so called, lies deeper, in the character of man, in the failure of his instincts, his emotions, his intelligence in the broadest sense, to cope as yet with the new and puzzling problems which science has raised.

The nineteenth century heard much of a supposed warfare between science and religion. Many of the most intelligent minds expected science to defeat and replace religion. As a result, the old creeds lost ground. Yet the recent swift advances of science have served only to clarify its limitations. It has not even begun to touch first and last truths, the ultimate problems of the universe concerning which man has relied upon religion for beliefs to live by. The old warfare is seen to be unreal, but the damage to faith has been

great and the current revival of interest in religion is too vague to inspire confidence. In this field, of prime importance to man's conduct and happiness, the present view would be that science has destroyed and has not replaced.

The effects of the machine have been clearer, and certain specific gains and losses can be set down. An English novelist, Samuel Butler, led the criticism of the machine age in the late nineteenth century. He perceived that the substitution of machinery for much of manual labor was not the unmixed blessing that earlier thinkers had expected it to be. He noted a tendency to reduce human beings to mere tenders of machines, and, instead of freeing man from toil, to make him in a very real sense the slave of his machine. In large-scale production of the American type, the machine displays a skill simulating intelligence and it is the man who is the automaton. Hours of labor have been shortened, but there has been a decline of old-fashioned craftsmanship which cannot but be regarded as a heavy loss. The intelligence and character that skilful creative work develops must now be sought in other activities.

It is already clear, however, that this picture of gloom is far from the final word upon the machine age. There are many facts which suggest that the full development of machinery may greatly reduce the amount of such "slave" labor and so shorten hours as to free men generally for other activities. Man would then have to seek his main satisfactions in sport or amateur craftsmanship. Here is a prospective revolution in man's conduct and motives for action which may or may not work out to his ultimate good. At any rate, it looks far beyond the deadening routine of reiterated motions which Butler feared.

As an essential part of this system of production America has made an important contribution since the World War by discovering the possibility of large-scale consumption to keep pace with large-scale production. The extraor-

dinary goal has been achieved of increasing wages while decreasing prices. The exact economic principles involved are far from certain, but American business is being won to the practical view that only by sharing increasing income with workers in the form of increasing wages and with the public by reducing prices in order to develop new purchasers can a market for the output of quantity production be found. The American marketing system through large-scale advertising obviously plays its part in such consumption, and so does instalment buying. The limits of this extraordinary development may soon be discovered. On the other hand, it is possible that America has worked out a system which will speed the complete development of the machine and raise the level of living for all classes far above the most optimistic hopes of humanitarians or socialists.

On the favorable side of the machine balance must also be set down the great adventure of flying and similar tests of man's courage and adaptability, created by invention. The passing of the sailing-ship, for example, involved a real decline of romance and beauty which the world could ill afford to lose. But the aeroplane has replaced it with an even more marvellous adventure. The truth seems to be that the progress of invention is so swift and changing that a comprehensive estimate of machine labor and its effects is impossible. The last word has not been spoken and may never be spoken. Meantime we shall probably continue to live for generations in a world of Aladdin's-lamp wonders, and the slaves of the machine will at least be able to refresh themselves by rubbing the lamp of science and performing every-day miracles which surpass the wildest fancy of the "Arabian Nights."

2. THE FAILINGS OF DEMOCRACY

As the records of history show, government of every kind has had its full share of human blundering and vice. The

failings of democracy, much stressed in current writing, should obviously be compared not with an ideal perfection or with the hopes of prophets, but with the standards actually set in the past by other forms of government or to be reasonably expected from them in the future. So compared, modern democracy has little to fear save by contrast with a few brief reigns of benevolent despots. The post-war discontent with democracy might therefore be dismissed as probably only a passing impatience were it not for the fact that two great Western nations have lately turned their backs on the democratic idea to experiment with rule by minorities. Whether Russia and Italy stand by their present governments or not, this break in the democratic tradition has been a striking one and has led to a searching criticism of the whole democratic theory.

The facts are elusive, the issues highly controversial, and it is impossible to present any accepted views of current political tendencies. A few of the major criticisms prevalent in America may be set down.

The political failures of democracy centre about the failure of the individual voter to exercise his franchise intelligently and effectively. There has been a great increase in honesty of balloting in the century of popular voting; the increase in intelligent voting has been discouragingly slow. Political bosses have substituted organization and clever leadership for cruder methods, and their power remains as strong as ever. In quality of representation many critics feel there has been a deterioration in ability, due largely to the more direct methods of voting. Many theories have been put forward and much reliance has been placed upon changes in the mechanics of voting and representation. The fundamental weakness of democracy remains as clear as does its fundamental strength. It is a clumsy, wasteful system of control which rarely permits a country to be governed by its ablest men. It does, however, create a stable

state, for serious discontent is forestalled by the share which every voter has in the direction of affairs.

The Russian dictatorship by a small group of socialistic leaders was born of the conception of "direct action" which entered radical philosophy before the World War. This policy urged the working man to enforce his claims by sabotage—injuring his employer's machinery, and so forth—or any other direct action as distinguished from the older methods by voting, negotiation, or bargaining. The I. W. W. was a small pre-war eruption of these views in America. The Bolshevik party in Russia carried the policy to its logical conclusion by seizing and holding the state. "Dictatorship of the proletariat" was the official self-designation of this movement; control rested in a small group representing a small party, and the great mass of the people, like the old aristocracy and the old bourgeoisie, were ruled as ruthlessly as under the czar.

The announced object of the revolution was the seizure of all private property, including land, and the organization of a socialistic Marxian state. Industries were to be run by the workers of each factory, and representation in the government was to be based upon these labor organizations, called soviets. The Marxian ideal was never achieved. At the very start the peasants rejected the communistic ownership of land; they rejoiced at the division of the great estates upon which they had toiled as serfs and refused to compromise their newly won control. The soviet system was installed in industry and, as might be expected of any social experiment, a long period of inefficiency followed. In commerce the soviet government found it necessary to countenance a so-called new economic policy, which in effect restored the principles of private property and capitalism to the small tradesmen. The recession from communism has been extensive, and whether the economic compromise that has resulted will endure remains to be seen.

Politically, the dictatorship of the Bolshevist minority has undergone little development. It has remained after ten years a revolutionary despotism, repressing free speech, interfering with the freedom of religion, executing political opponents, and generally exhibiting the characteristics common to all despotisms. No share in government has been granted to the great mass of Russians. Soviet agents have been active in other countries the world around, endeavoring to incite a world-revolution against the capitalistic system. As a result of this fantastic effort Russia has been largely cut off from intercourse with the rest of the world.

The example of Italy shows some striking resemblances to the Russian overturn and many sharp contrasts. The aim in Italy was the exact reverse of the Russian purpose. It was to preserve capitalism, nationalism, and the existing order against a threat of socialism or communism. The inspiration came from one popular leader, Mussolini, instead of a group, as in Russia; and while he built his strength on the Fascist party and utilized the existing parliamentary and monarchical institutions, he followed more closely the Napoleonesque tradition of one-man dictatorship. Free speech has been repressed and political opponents forced into exile. Industrially, a new efficiency has been achieved, and the material benefits to Italy have been great. The most serious problem is that inherent in every benevolent despotism: What will happen when Mussolini meets his end?

It needs to be stressed that Russia was the most backward nation of Europe politically at the time of the World War, and the terrible repressions of absolutism made some great explosion almost inevitable. Whether or not Bolshevist rule develops any principles of value to the more advanced nations, it at least was a natural reaction of the sort that normally accompanies the overthrow of a tyranny. Italy led the Western world intellectually in the Renaissance, but it has consistently lagged far behind in its political life. It

had but a few generations of experience with free institutions when the test of the World War arrived, and the parliamentary system, functioning through a responsible cabinet, had never worked effectively.

It may therefore be contended that both of these anti-democratic movements originated from special causes, and neither holds any general moral for the nations of the Western world more experienced in political self-rule.

The democratic experiment was generally regarded in the nineteenth century as linked with universal education. The post-war reactions have renewed the plea for more and better education. In addition, there has been an urgent demand upon the newer sciences—economics, psychology, and so forth—for new and better wisdom that will lead nations to direct their policies more intelligently and, above all else, prevent wars. The whole problem of education has been re-examined and a wealth of experiment and new theory been attempted. The historian of political institutions will hardly expect discoveries with regard to either education or the social sciences to effect swift improvement. Certainly, they have effected no revolution as yet. Mr. H. G. Wells's assertion that the fate of civilization hangs upon "a race between education and disaster" seems to exaggerate both the potentialities of education and the stupidities of man. One can be less optimistic about education without feeling hopelessly despondent over the fate of the universe.

In taste as in education, the record of democracy can also be claimed by the pessimists. Quantity production and the decline in craftsmanship have cut off at the roots the most widely diffused sources of beauty and the appreciation of beauty. Yet counter-forces are visibly at work, and such inventions as the radio and the moving-picture holds obvious possibilities for the development of popular taste.

The only certainty that can safely be set down about the democratic experiment is that it has still to discover the

straight road to Utopia that its originators confidently hoped it would take. The old complexities of man's nature have been multiplied by the new complexities of his machines. Before such a tangle of contradictory forces prophecy is idle, and the most that the optimists can fairly assert is that democracy is the best basis of social organization that has yet been discovered.

3. PEACE OR WAR

The World War left in its wake a natural preoccupation with the problem of peace and how to preserve it. The League of Nations was chiefly planned as a machine for preventing war. The Utopians asked for nothing less than a world-state that would make war impossible. The goal that Tennyson had pictured as a poetical fancy:

"Till the war-drum throbb'd no longer, and the battle-flags were furl'd
In the Parliament of man, the Federation of the world,"

was seriously urged as a practicable aim. Since extreme nationalism was a major cause of the World War, all patriotism was arraigned as a baleful influence.

Meantime slower forces have been set in motion, designed not to make war impossible but to make it less likely. The League of Nations has become an increasingly effective agency for holding in check the extravagant nationalism of Europe. The division of that continent into relatively small nations was accentuated by the Treaty of Versailles. While a true federation of Europe seems as far off as ever, enough economic and commercial unity to prevent minor irritations and facilitate industry and the interchange of raw materials and products seems within the bounds of possibility. Whatever Americans may think of the wider aims of the League, and however they may be opposed to American membership in it, they can surely applaud its European activities and welcome every gain in its influence over European problems.

The forces making for war are still active in Europe, as the post-war period has revealed with amazing frequency. Some form of European union respecting nationality but subordinating it to the welfare of the European community has long seemed likely to be the next great step in world-organization. If the League can contribute progress toward that end, it will amply justify its existence.

More fundamental in its outlook and even slower to develop is the habit of settling international disputes by arbitration or by international courts. The first conspicuous example was the submission to arbitration in 1871 by the United States and Great Britain of the Civil War claims based on alleged help given the Confederacy by Great Britain. The Hague Conferences of 1899 and 1907 created permanent courts of arbitration. Finally, pursuant to the Versailles Treaty, the Permanent Court of International Justice was established in 1920. This general movement looks toward an ultimate development and codification of international law and the gradual establishment of a rule of law as between nations, corresponding to the rule of law that has been successfully established as between individuals in civilized nations.

While Europe has been wrestling with its own difficult problems, a spirit of unrest has spread around the world, beginning with the Mohammedan peoples of the Mediterranean, spreading from Russia to India, and entering China. Bolshevist propaganda has played its part in fomenting disturbance, but the main source of revolt has been the reaction of Eastern minds to Western education and contact. The differences of race and character between the two regions have already been stressed. It could hardly be expected that the East would be occupied, governed, educated, and developed industrially and commercially by the West for generations without developing a Western ideal of nationalism. Whether the East is ready to stand alone,

whether China, for example, can fuse its diversities of speech and government into one self-ruling nation, is beyond prediction, nor can the effect upon relations with the West be foreseen. The East may be absorbed in its own problems for generations to come; or ambitions may bring swift clashes along racial lines or across them; or mutual understanding and respect may develop to lessen the tension of the ancient rivalry of East and West. All that is certain is that new forces are active from the Mediterranean to the Pacific, and that their end is afar.

4. A TIME OF CONFUSION

It has already been suggested that the twentieth century bears many of the marks of an era of transition, of a century like the fourteenth or the seventeenth, when old motives were weakening and new forces were still germinating underground. If it is insisted again that there is no such thing as an era or an age, and that such groupings of years are simply convenient ways of describing tendencies, there can be no harm in setting down this broad characterization of the present as a time of confusion. Yet the whole picture may be as swiftly changed as was the peace of the world by the War. History coincides with no convenient units of time. Centuries correspond accurately with nothing but the calendar. It may well be that the present years are the threshold of a great and stirring period. All that is suggested is a superficial characterization of the immediate present.

Among the qualities which most obviously contribute to this impression of confusion are intense activity, a spirit of experimentation, and a curiosity that doubts all things. The recent course of religion and art is typical of these tendencies. Never were there so many new religions or so much experimenting with old religions. The West studies the East and the East studies the West. Every item of faith

is examined and questioned. Similarly, modern art has experimented with new theories of form in painting and sculpture and new scales and harmonies in music. Futurist succeeds to cubist, and both are rejected for a neo-classicism. There has been a break-up of technic and standards. Perhaps ground has been prepared for a new and greater art, but the greater art has yet to appear. Moral standards, and ancient institutions like marriage, are similarly facing question and experiment.

To name these characteristics is to suggest that past decades of scientific training may furnish a clew to the spirit of the present age. Yet the activity is too casual, the experimentation necessarily too inaccurate, since it deals in human activities, to be fairly compared with the thorough and methodical researches of science. If science has indeed developed the mind of the present, its fundamental axioms have been forgotten in the wider field of life. The suggestion is strengthened that the modern mind has outlived its earlier absorption in the scientific quest, and has yet to find either its philosophy or its goal for the future.

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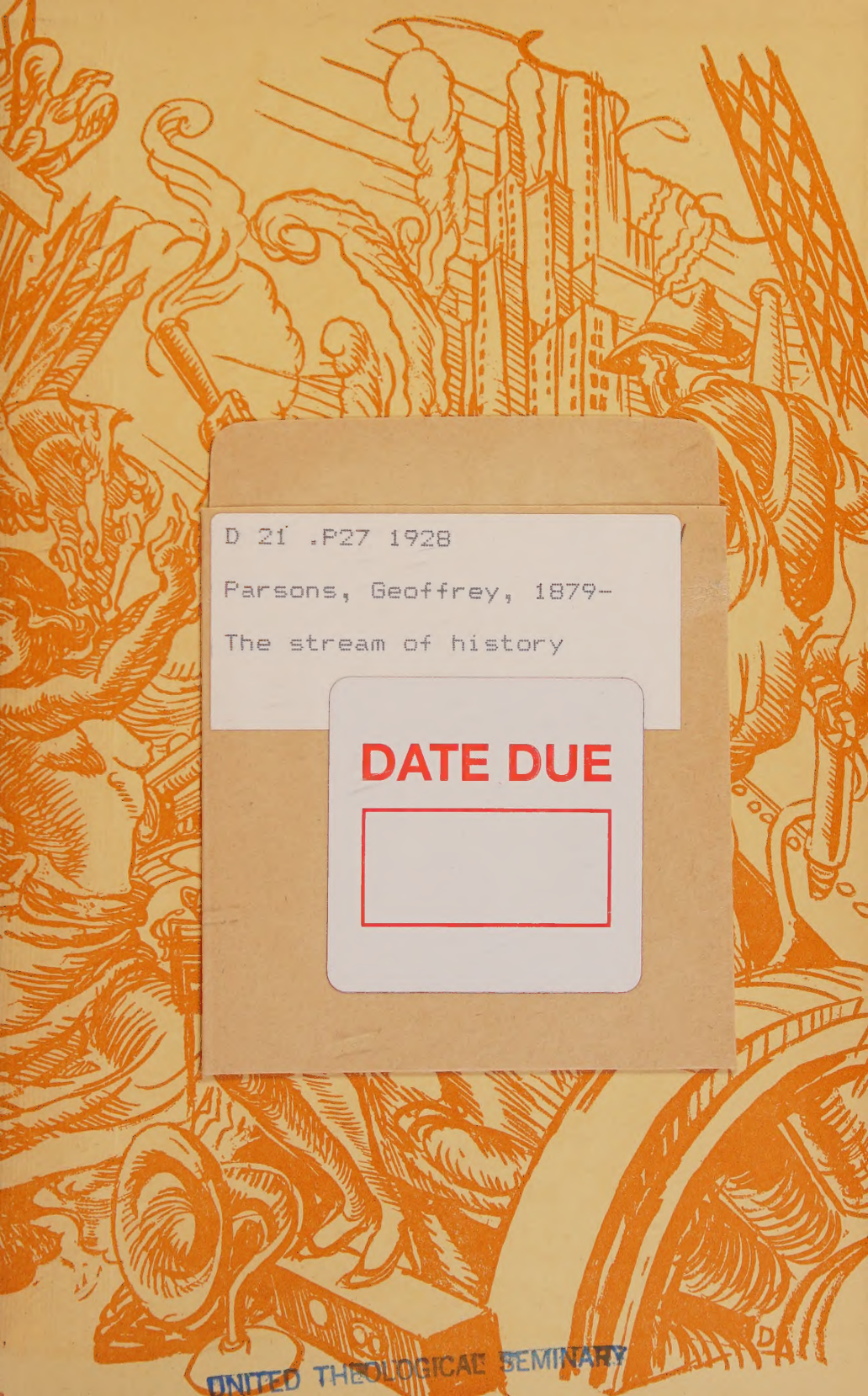

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